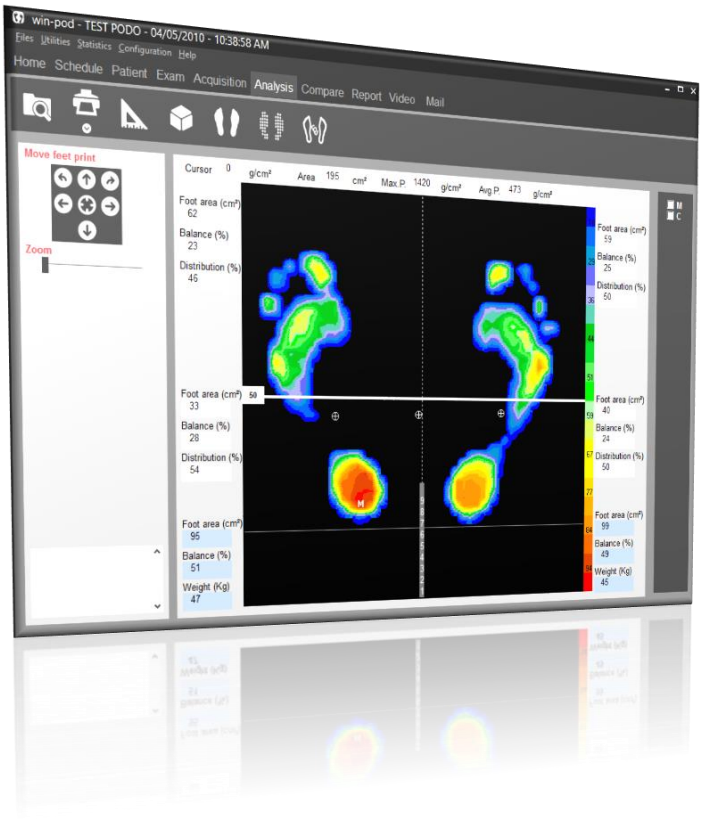
medicapteurs
PODOLOGIE, POSTUROLOGIE ET RÉÉDUCATION

User's Manual


win-pod - TEST PODO - 04/05/2010 - 10:38:58 AM
Files Utilities Statistics Configuration Help
Home Schedule Patient Exam Acquisition Analysis Compare Report Video Mail
Move feet print
Zoom
Cursor 0 g/cm² Area 195 cm² Max.P. 1420 g/cm² Avg.P. 473 g/cm²
Foot area (cm²) 62
Balance (%) 23
Distribution (%) 46
Foot area (cm²) 33
Balance (%) 28
Distribution (%) 54
Foot area (cm²) 95
Balance (%) 51
Weight (Kg) 47
Foot area (cm²) 59
Balance (%) 25
Distribution (%) 50
Foot area (cm²) 40
Balance (%) 24
Distribution (%) 50
Foot area (cm²) 59
Balance (%) 49
Weight (Kg) 45

Win-Pod

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Foreword

We appreciate your confidence in the MEDICAPTEURS Company and we would like to thank you for choosing Win-Pod Technology.

"WIN-POD Software" has been designed to be user friendly and only requires basic computer skills. The friendliness of the software however, does not replace **the necessity of reading this manual** to guide you step by step through the procedures to properly use the "WIN-POD Software", and it will also help you save valuable time.

In addition to this manual, you will find the following documents on your "WIN-POD Software" CD:

- The **Installation Guide** for the platform and the "WIN-POD Software".
- The **Trouble Shooter** (problems solving manual). Medicapteurs has established a support system to help yourself resolve basic problems you may encounter.

Enjoy your reading and welcome to the prestigious "WIN-POD" users' Club.

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Warranty

For a period ending on the date of the twelfth month anniversary of the date of delivery (such period being the “Warranty Period”), the equipment, used under normal operating conditions and not subject to misuse or abuse, shall be free from defects in material, workmanship and design and shall operate and conform to the performance capabilities, specifications, functions and other descriptions and standards as described in the specifications.

During the Warranty Period and subject to the exclusions below, Manufacturer at its option and expense, shall promptly repair or replace equipment that does not conform to the warranty. The procedure for effecting warranty replacement or repair will be as specified by Manufacturer. Purchaser shall ship Equipment for warranty replacement or repair to Manufacturer at Purchaser's expense, and Manufacturer shall ship repaired or replaced equipment to Purchaser at Manufacturer's expense.

For proper shipping of the equipment to MEDICAPTEURS for repair or maintenance, Purchaser shall include complete sender’s information, the equipment serial number and a brief description of the problem.

Purchaser shall use preferably the original shipping package. If it is not available, Purchaser shall contact a professional shipping service company which will assist Purchaser with proper packaging instructions and materiel.

Limitations of warranty and disclaimer

The Software:

The Software is and shall remain the exclusive property of Manufacturer. This license confers no title or ownership in the Software and is not a sale of any rights in the Software. No license other than that specifically stated herein is granted to Purchaser, and Purchaser shall have neither right to sublicense the Software nor any right under any patent, trademark, copyright, trade secret or other intellectual property of Manufacturer other than that granted by this Agreement.

Manufacturer grants Purchaser, a personal, non-exclusive, non-transferable, perpetual license to use the Software in the product under the terms and conditions stated herein. If the license is transferred by the Purchaser to a third party without the company’s written consent and approval, the Purchaser and the Third Party shall be held jointly responsible for payment to the Manufacturer of a minimal compensation of 20 times the price of the software, without prejudice as to any other damage and interest. The software travels at the Purchaser’s risk and expenses.

Purchaser shall not make any modifications to the Software or remove any proprietary, regulatory or safety notices of Manufacturer in or on the Software. Purchaser further agrees not to reverse engineer, decompile or otherwise reverse assemble any portion of the software or create derivative works based upon the Software.

This Software Agreement does not grant Purchaser any rights in connection with any trademarks or service marks of Product.

Manufacturer warrants to purchaser that, in case of any software it has identified at its own property, the software will substantially conform to the applicable Manufacturer’s specifications in the date of installation and for a period that is consistent with the warranty offered herein. Manufacturer’s sole obligation under this agreement is limited to responding to purchaser’s contact and to using commercially reasonable efforts to correct reported problems by supplying purchaser with a corrected version of the Software.

Warranty

Copyright:
All title and intellectual property rights in and to the content that may be accessed through use of the Software is the property of the respective content owner and may be protected by applicable copyright or other intellectual property laws and treaties. This agreement grants Purchaser no rights to use such content except as accessed through the Software. If the Software contains documentation that is provided only in electronic form, Purchaser may print copy of such electronic documentation.

Disclaimer:
Manufacturer does not warrant that operation of its Software will be uninterrupted or error free, or that any defects in the Software are correctable or will be corrected; or that functions contained in the Software will operate in the combinations which may be selected for use by purchaser to meet Purchaser's requirements. Manufacturer's warranty and seller's obligations will be void if the Software is modified without the prior written consent of Manufacturer.

Except for the express limited Software warranty for the Software, Manufacturer and seller expressly disclaim and exclude all other warranties, whether express, implied in law or otherwise to the fullest extend permitted by law, and the above limited Software warranty is in lieu of all obligations and liabilities on the part of the Manufacturer for damages arising out of or in connection with the Software, including without limitation any warranty of merchantability, satisfactory quality or fitness for a particular purpose.

Exclusions: Seller and Manufacturer shall have no obligations with respect to any defects, damage, or non-conformances of Equipment that result from: improper installation, operation or maintenance; unauthorized repair; tampering; any use of the Equipment not in conformance with the relevant Equipment specifications or from accidents, or "acts of God"; or other such occurrences after delivery. If any Equipment returned by Purchaser for repair or replacement is not defective or nonconforming or contains a defect or nonconformance caused by a factor outside the scope of Manufacturer's warranty, Manufacturer shall bill Purchaser at Manufacturer's normal service rate for services performed with respect to such defective returned Equipment or for "no fault found" with respect to returned Equipment which is not defective.

LIMITATION ON WARRANTY:
MANUFACTURER AND SELLER MAKE NO WARRANTIES REGARDING THE EQUIPMENT TO BE PROVIDED HEREUNDER OTHER THAN THE EXPRESS WARRANTIES IN THIS SECTION AND THERE SHALL BE NO IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT. THE SOLE REMEDIES OF PURCHASER FOR ANY BREACH OF WARRANTY ARE THE REMEDIES SET FORTH IN THIS SECTION. MANUFACTURER AND SELLER SPECIFICALLY DISCLAIMS ANY AND ALL WARRANTIES TO CUSTOMERS OF PURCHASER.

Limitation of Liability: In no event shall Manufacturer or its Affiliates, Seller or suppliers be liable for indirect, special, incidental, consequential, punitive or other damages (including lost revenue, lost profit, lost data, downtime costs,), arising out of the use, inability to use, or the result of the use of the Equipment whether based on warranty, breach of warranty, contract, tort, or other legal theory, and whether or not advised of the possibility of such damages. In no event shall Manufacturer or its Affiliates, Seller or suppliers be liable to Purchaser for any damages, however based, in excess of the amount paid by the Purchaser to Seller for the Equipment.

Historical background

The first recording of plantar support was performed in1880 through the work of MAREY and DEMENY.

As early as 1947, SCHWARTZ used piezo-electric sensors positioned under the plantar surface of the feet for performing a dynamic gait analysis.

In 1962, CARLSON and TAILLARD further the studies on dynamic analysis.

In 1966, significant studies were conducted using the electro podography method established by INSERM research institute in Montpellier, France. It studied the static and dynamic behavior of plantar support with sensors/insoles and a dynamometric mat.

In 1983, the studies performed by Professor RABISCHONG leaded to the development of sensitive insoles using « artificial skin » technology (Registered by ANVAR/CNRS).

Simultaneously, Mr. CLOT's and Mr. ESTEVE's studies from the research labs of the LAAS/CNRS in Toulouse, France resulted in the design of an **Electronic Podometer**: a Platform for the Analysis of Static and Dynamic Plantar Supports.

In **1985,** the company MIDI-CAPTEURS manufactured and commercialized the **Electronic Podometer PEL 38.**

PEL 38 became the reference not only for the quality level of the analysis results but also for the design of the software and positioned MIDI-CAPTEURS as the European leader in the field of Electronic Podometers.

The **WIN-POD** system was born in 2003, using the latest calibrated sensors' technology for continuously improving performance.

In 2004, MEDICAPTEURS launched the **FUSYO platform, and became the only manufacturer of a system integrating an electronic podometer into a posturology platform built according to APE specifications.**

With the introduction of **WIN-TRACK** in 2009, MEDICAPTEURS strengthen its leadership position in the design and manufacturing of podiatry, posturology, and biomechanical analysis platforms, serving more than 5000 customers and numerous renowned distributors, resulting in a constant progression in the global market.

IMPORTANT NOTICE

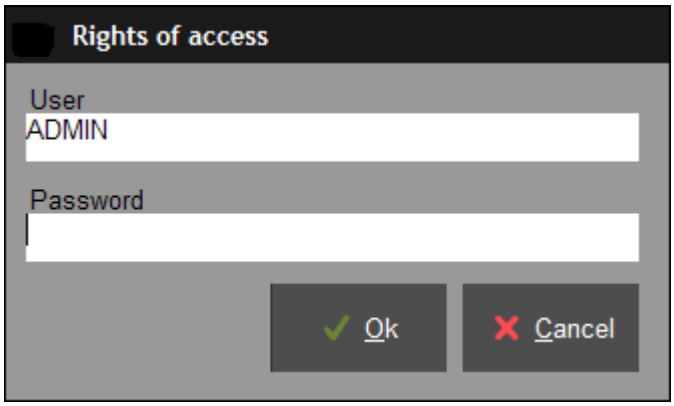
Your "WIN-POD Software" integrates a patient database (**patient files)** which contains private health information related to the patients and their specific measurements.

In order to avoid losing the studies performed with your software, it is **necessary to perform a BACK UP to save the patient database on a regular basis** ; in fact any technical problem on your computer may affect and destroy such valuable data.

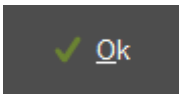
We highly recommend a minimum of one Back Up on a weekly basis on an external drive, CD RW, etc. (see page 85).

WIN-POD Software Start Up

- ✓ Launch the "WIN-POD Software", by double clicking on the following icon
- ✓ Within a few seconds, a window will open asking for the user's password :
  Note: this security option is now mandatory for software utilizing confidential patient information.



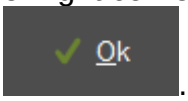
The default user in the software is: "ADMIN" which does not require a password.
To create your own user's name and password please refer to page 18.

- ✓ Click 

to start the program.

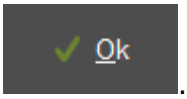
Exit WIN-POD Software

With the « Exit » Key:

- ✓ Click on the located in the upper right corner of the screen.
- ✓ Confirm your action by clicking on 

.

With the "File Menu"

- ✓ Click on "File".
- ✓ Select "Quit".
- ✓ Confirm by clicking on 

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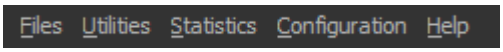
WIN-POD Software Navigation

Title Bar

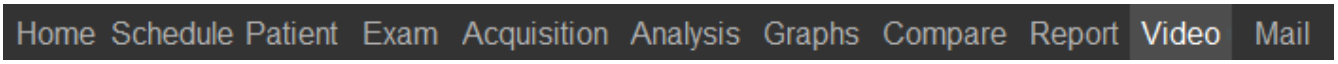
It includes the name of the software, the patient's last name and first name, the exam date and time of the recording.

Menu Bar



It contains the menu: **Files – Utilities - Statistics - Configuration - Help**.

Selection Bar



It allows access to all the phases of a podiatry assessment.
The typical process is done by clicking on the tabs from the left to the right.

Tool Bar

It includes the icons for quick access to the software functions.

Several tool bars are available according to the displayed screens.

Menu bar

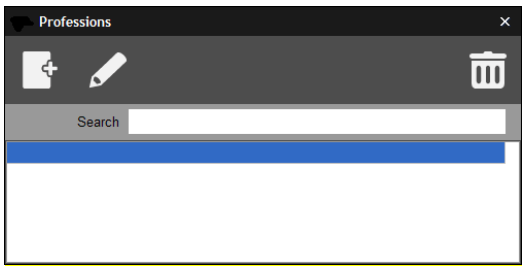
Menu "Files"

This menu can be used for creating or changing pre-established lists which can be opened when completing the patient file and the exam file.

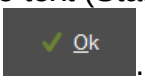
Available Lists

- Correspondents
- Clinical exam
- Complaints
- Professions

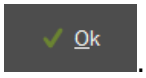
Adding Data To The List



For example : For the above mentioned lists, perform the following operations:

- ✓ Click on .
- ✓ Insert the text (Start with an upper case!)
- ✓ Click on  .

Deleting Data From The List

- ✓ Click on the item to erase
- ✓ Select .
- ✓ Confirm by clicking  .

Special case : clinical exam

For the parameters of the clinical exam, you can modify each list as written above but also the name of the parameter. So you can entirely personalized the clinical exam.

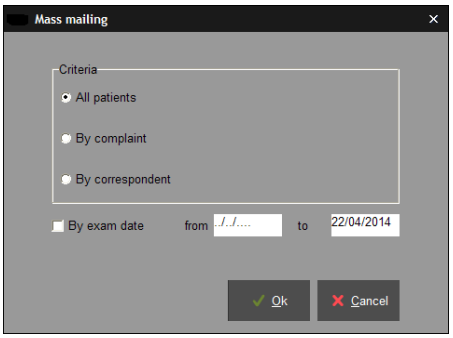
Menu Bar

Menu "Utilities"

Exporting and importing exams

Exams can be imported or exported between "WIN-POD Software" users.
Click on the option you selected and follow instructions.

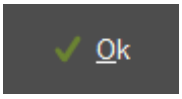
Mass Mailing



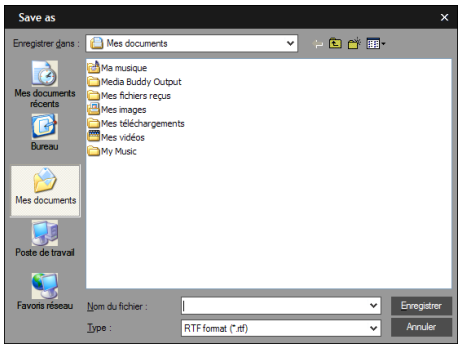
The « Mass Mailing » function allows database selection according to specific categories:

- By exam date
- By complaint
- By correspondent

✓ Choose your type of selection by clicking on exam date or a time range of exam dates.

✓ Click 

and the following window will open :



✓ Save your data as a text document :

To open the selected listing in a table format :

✓ Open a table (Excel for example).

✓ Load the table in a text format".txt".
The lines and columns will be created automatically in your mail message.

Menu Bar

Menu "Statistics"

This menu allows the user to graph or list data by pathologies, practitioners, users, foot size, professions, and by gender.

Statistics on foot sizes

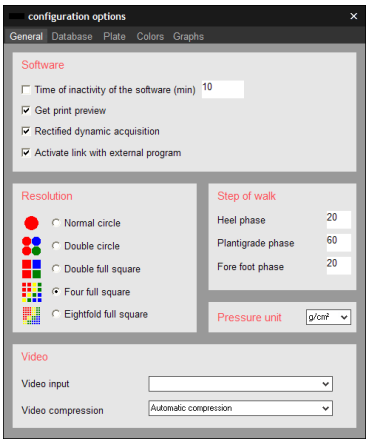
Menu Bar

Menu "Configuration"

Parameters

The Parameters window includes several tabs

- The **"General"** tab allows to modify the following parameters :



  - ***Software Stand by Mode*** : Setting the timing for software to run on the stand by mode. The password is required to re enter the software.

  - ***Print preview*** : Activated or not active.

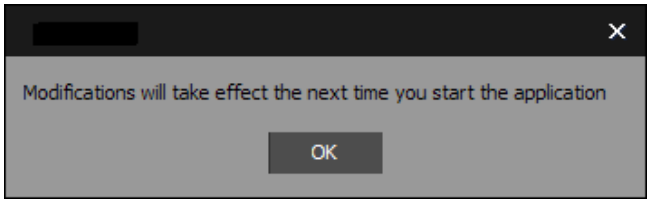
  - ***Activation of Links with External Software*** : Allowing exchange of patient data and recordings between "WIN-POD Software" users and other software (example : RM informatics).

  - ***Resolution*** : Allow to change the type of cartography visualization. The « Eightfold » mode is reserved for powerful computers.

  - ***Phases of Gait*** : Personalized norms of the three phases of the gait cycle (see page 55) : you need to enter the relative timing of each phase of the cycle (in %) Heel Strike, Plantar, and Toe Off (by default: 20, 60 and 20%).

  - **Measuring System** : Allow to choose between Kpa and g/cm².

  After completing your selection, the following window opens :



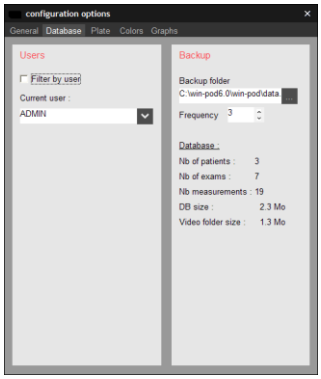
Exit "WIN-POD Software" and reopen it for your selections to be activated.

Menu Bar

Menu "Configuration"

Parameters

- **"Data Base"** tab

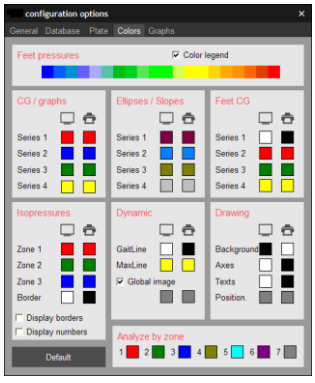


  - ***Users*** : When more than one person uses the software, the database can be filtered according to the end user (practitioner, clinic, assistant, etc.) Select the "Filter by user" icon and then select the particular user, the software will only access the selected user database.

  - ***Saving*** : Allows to establish database back up folder and saving frequency (based on the number of times the user's has used the software)

- **"Plate"** tab is reserved for hardware maintenance.

- **"Colors"** tab is used to redefine the screen and printing colors used in the software.



  To change one color, click on color to be changed. A color palette appears on screen. Click on the desired color then validate.

  Note : Selecting

 will reset all colors to the software original colors.

- **"Graphs"** tab allows establishing preferences and parameters for visualizing graphs.

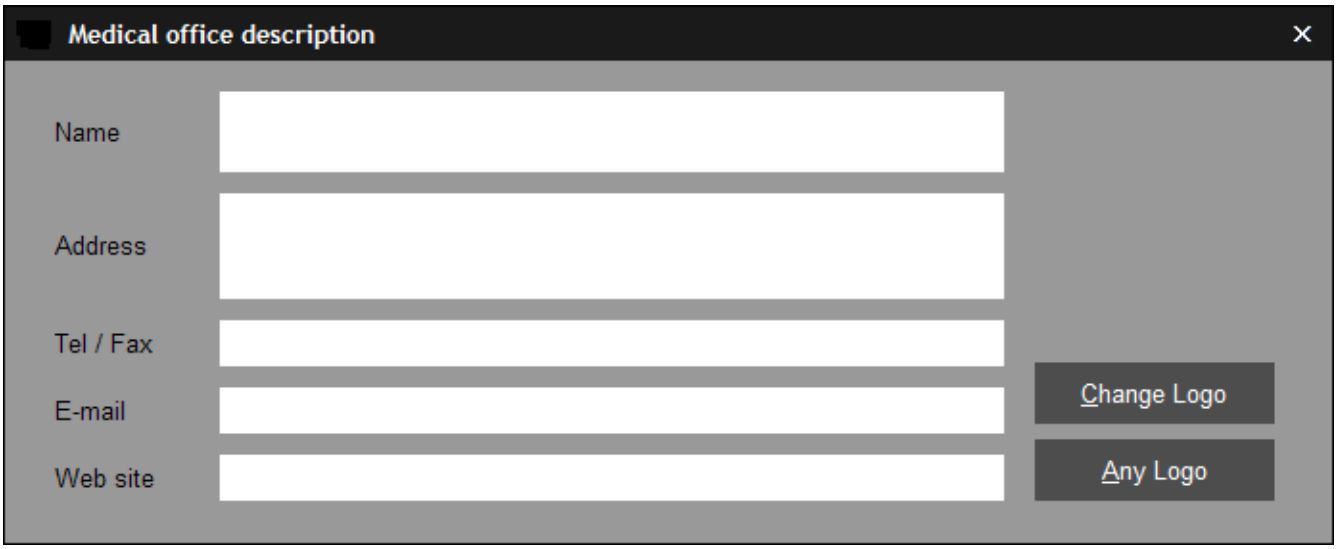
Menu Bar

Menu "Configuration"

Medical Office

Enter your office contact information and logo to be displayed at the top of printed documents.

Please perform this procedure when using the software for the first time.



Right of Access

The Software Administrator is the only person allowed to access this function. This function allows the administrator to set up other practitioners/users and their respective passwords.

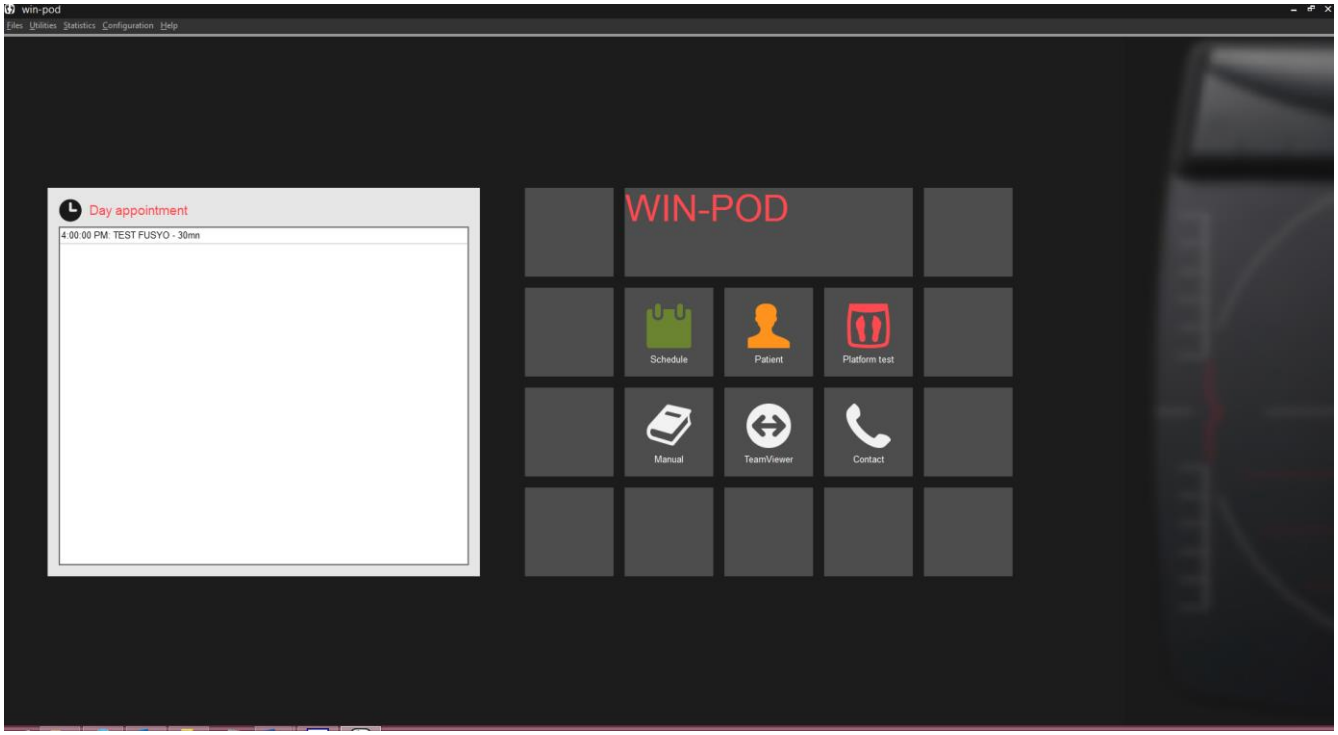
More than one user can work on the same system (clinic setting). This function needs to be performed when using the software for the first time or when changes in users are necessary.

Language

Select the language you want and the software will translate automatically.

Welcome Page

Upon launching the software, the welcome page opens up so you can quickly access the main software functions. The daily appointment list will also be found.



You have direct access to :

Schedule.

Patient file.

Live plate testing.

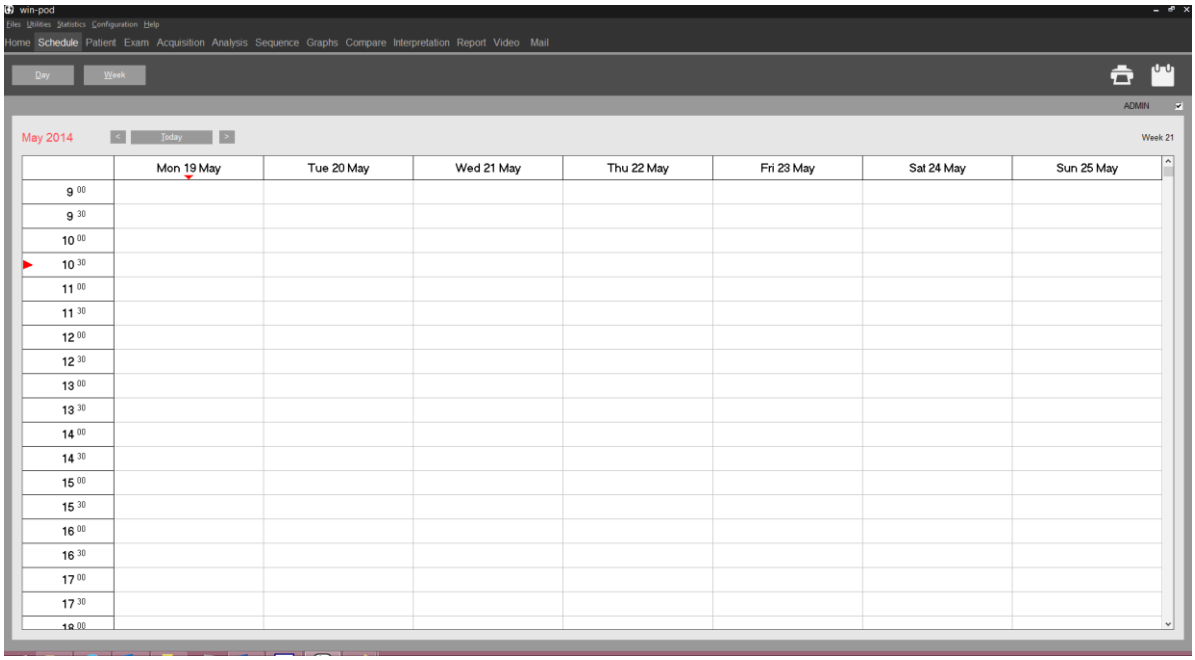
User manual

Secure software, upon selection, allows for remove access of your computer by our maintenance team.

MEDICAPTEURS' contacts list.

Schedule

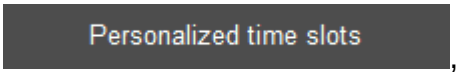
The scheduling screen can be selected on the welcome page. The tabs allow to manage the appointments schedule.



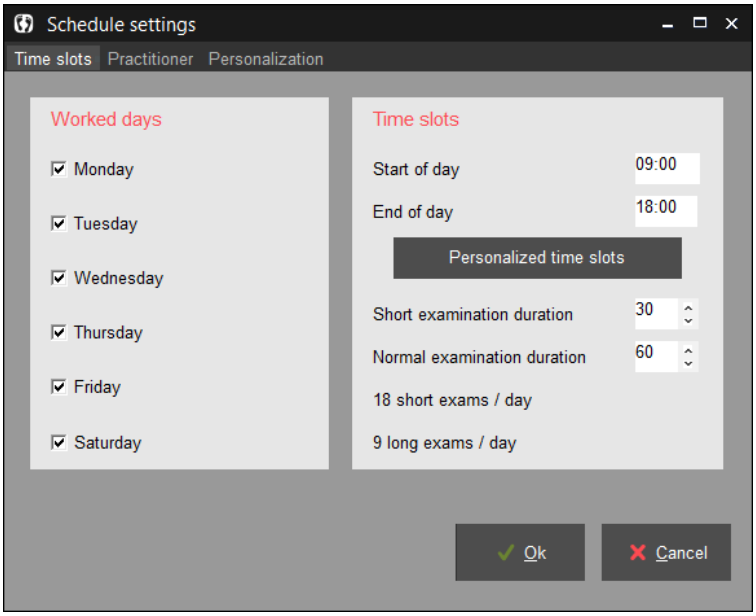
Schedule parameters

Configuration -> Schedule allows setting the scheduling parameters.

- The tab « Time slots » allows defining work days and daily schedule time slots.

  By clicking on 

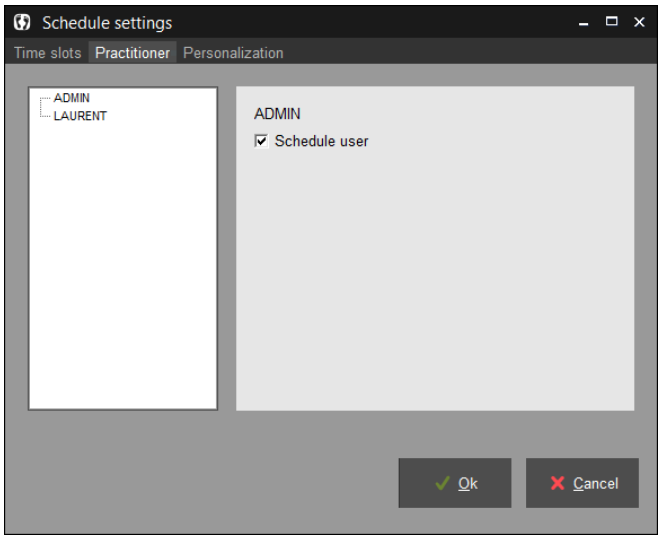
, you can define the time slots for each day of the week.



Schedule

Schedule parameters

- The tab « Practitioner » allows to manage the schedule for multiple software users (maximum 4 users).
  It is mandatory to select the “Schedule user” icon for the user to appear on the schedule.

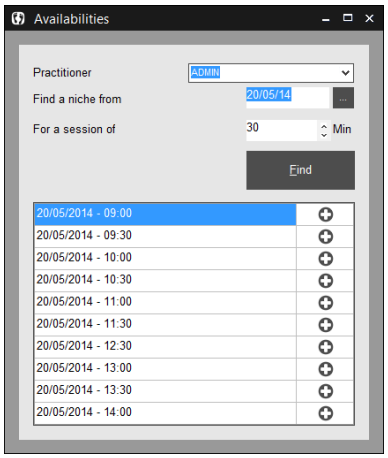


Schedule browsing

You can display the schedule per day, week, or month. When the display mode is selected you can browse on the calendar by using the < and > and return to the current day by clicking on Today.

The icon allows to display a specific day selected in the calendar.

And by clicking on Availabilities, you can find available times starting at a specific date.



Schedule

Making an appointment

After selecting the day, double click on the time slot you want. The following window opens :

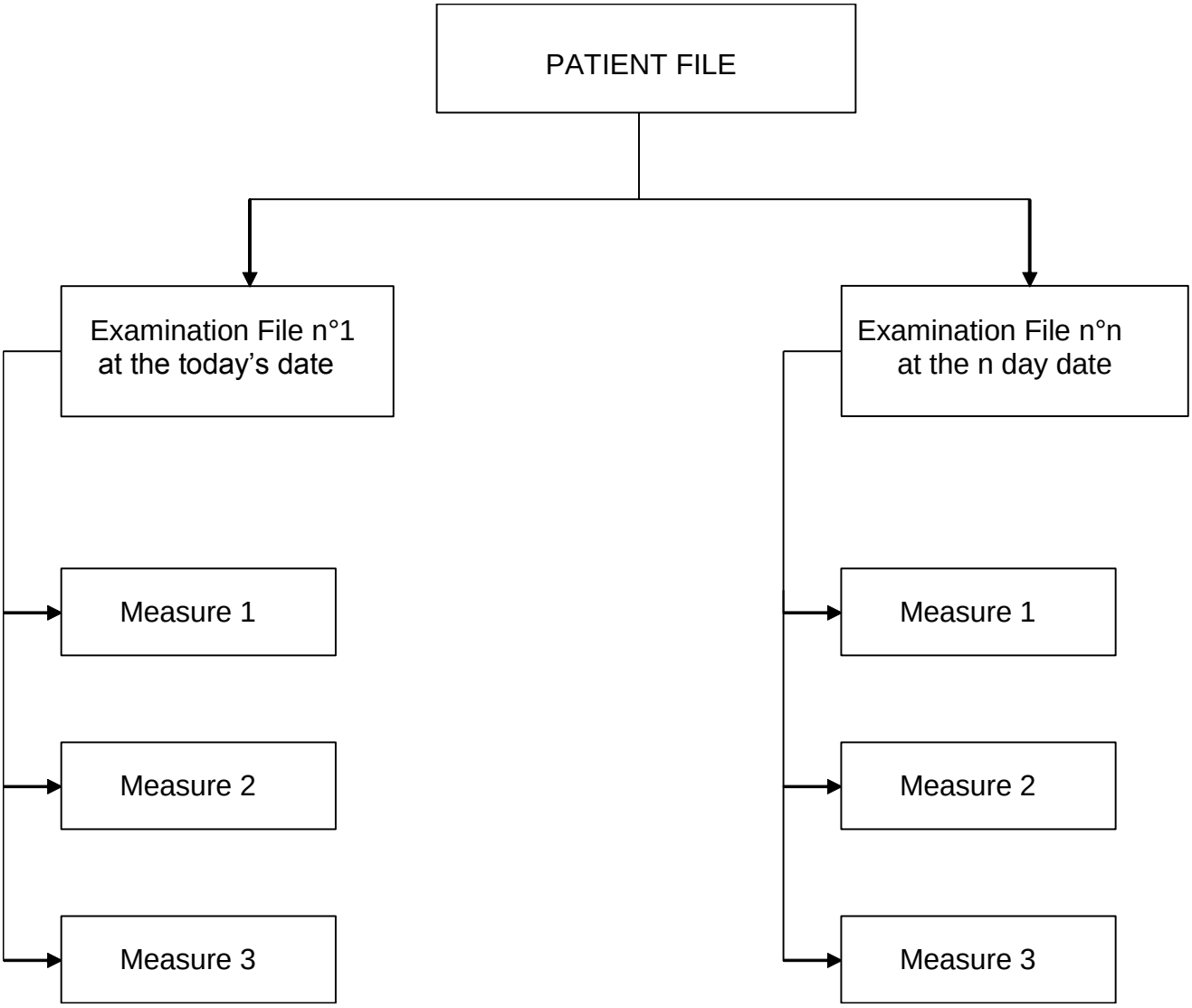
- ✓ The patient selected is the currently active patient in the sofware by default. You can select another patient by clicking on Search or by creating a new one by clicking on New. If you create a new patient, you must also enter mandatory information necessary for the patient visit (refer to page 25, « Creating a new patient file »).

- ✓ Complete the required fields.

- ✓ Click on ✓ to validate the appointment.

- ✓ The color for the appointment on the schedule varies according to the type of procedure : Clinical exam in green, Patient care in blue, Providing orthotics in yellow, Check up in gray, and Personal in red.

Visit Flow Chart



An assessment includes the following phases:

1) All the data from the **Patient File** including the patient's personal information and measurements.

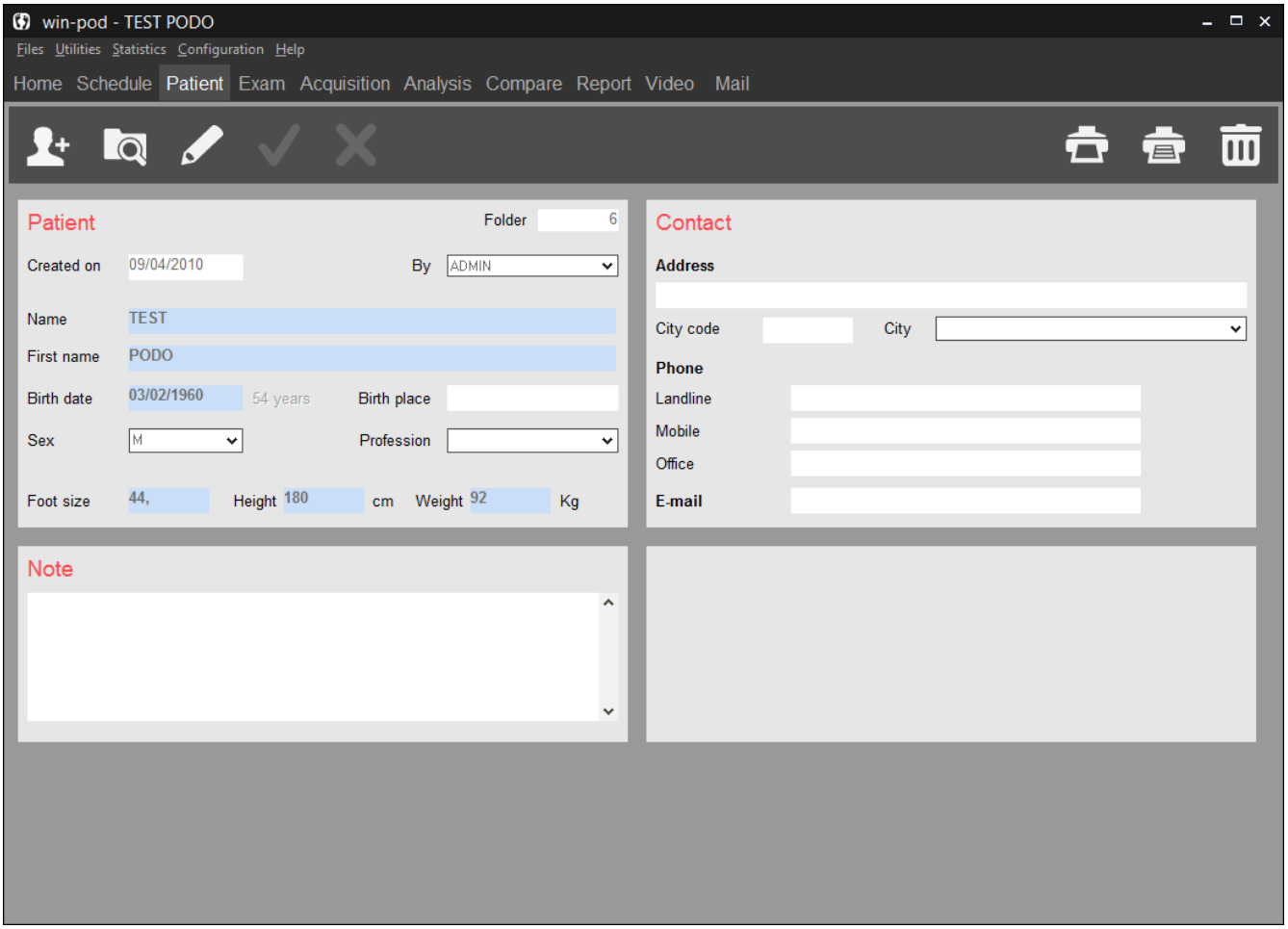
2) All information from the **Exam File** related to the type of exam and patient's pathology.

3) Selecting the type of **Measurements** to be performed : static, dynamic or postural measurements. More than one measure can be done through one exam.

4) Recording the selected measurements on the hard disc through **Acquisition**.

5) **Analysis** of the measurements.

"Patient" Tab



Tool Bar

New : Creating a new patient file.

Search : Search the database for an existing patient file.

Modify : Modify an existing patient file.

Validate.

Cancel.

Print a patient file.

Print the entire patients listing.

Permanently delete a patient file and all measurements.

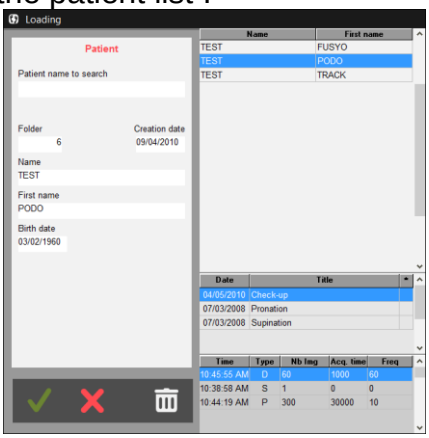
"Patient" Tab

Creating a new patient file

- ✓ Select .
- ✓ Enter patient data.
  Mandatory information fields will appear in blue : Name, First Name, Birth Date, Foot Size, Weight and Height.
- ✓ Use pre-defined list (see « Files » menu) for the fields where a down arrow key is present ⌄ “Gender” and "Profession".
- ✓ Once the patient file is completed, click on .

Searching for an existing patient file

- ✓ Click on to access the patient list :



- ✓ Type the first letters of the name in the field «Patient name to search ».
- ✓ Click on or double-click directly on the patient’s name.

Modifying an existing patient file

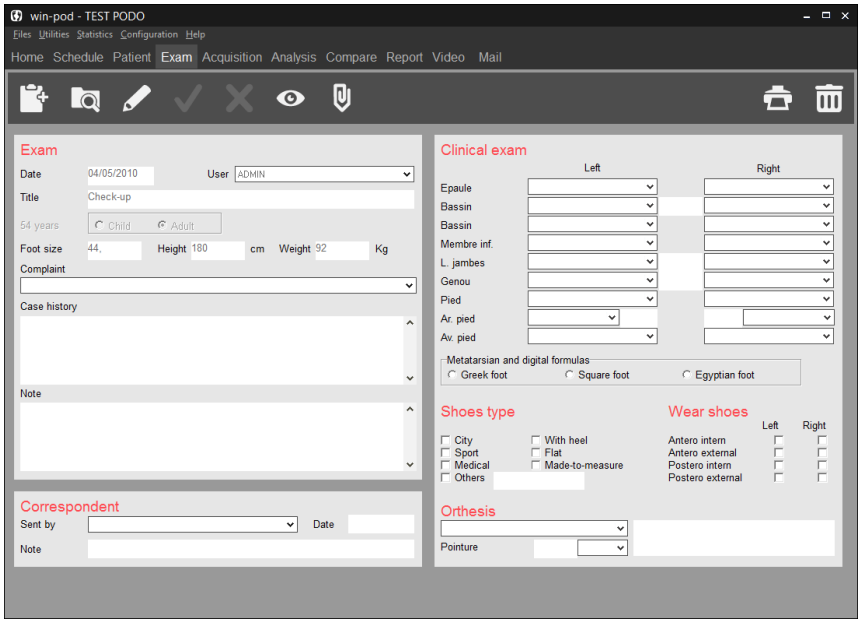
- ✓ Click on .
- ✓ Modify the concerned fields.
- ✓ Click on to validate changes.

"Exam" Tab

An exam file consists of all the measurements performed (acquisitions) for a given patient, **on a given date.**

A new exam file must be created at each patient visit.

An exam may contain an extensive number of measurements (acquisitions) from the same exam type or different types (static, dynamic, or postural measurements).



Tool bar

New : Creation of a new exam file.

Search : Search for an existing exam file.

Modify : Modify an existing exam file.

Validate.

Cancel.

Print an exam file.

Permanently delete an exam file and all associated measures.

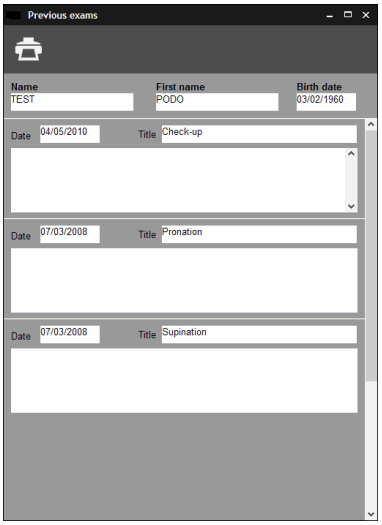
View previous exam notes.

Attach documents to an exam.

"Exam" Tab

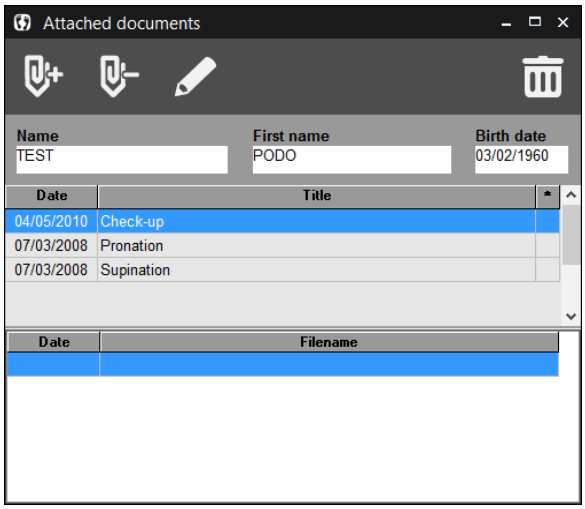
Previous exams

View and print previous exam notes to facilitate patient care.
Do not forget to fill in "Title" area and the **exam notes** if you desire to see patient notes history throughout care.



Attaching documents to an exam

This function allows attaching documents (word, pdf, picture, video) to an exam.



- ✓ Select an exam, by default the displayed exam is selected.
- ✓ Click on to search on your computer the document to be attached. The software will generate a copy of this document in the directory *c:\win-pod\Documents\Attached* in order to group all attached documents.

"Exam" Tab

Attaching documents to an exam

The following icons will allow you to manage attached documents :

Undo a document attachment. This function does not erase the document from the computer.

Rename the document

Erase a document from the computer.

The software also allows you to automatically attach pdf prints to the current exam, when the arrow is located on the print icon : , or attach images when you right click on the footprint (menu “Attach to the exam”).

Creating a new exam

- ✓ For an existing patient, click on .
- ✓ Complete the different sections.
- ✓ Validate by clicking on

Searching for an existing exam

- ✓ Click on .
- ✓ Click on or double-click directly on the exam.

Note : You can only modify measurements in an existing exam on the date of the exam. Later on, you have to create a new exam file.

Modifying an exam file

- ✓ Click on .
- ✓ Modify the different sections you selected.
- ✓ Click on to validate changes.

"Acquisition" Tab

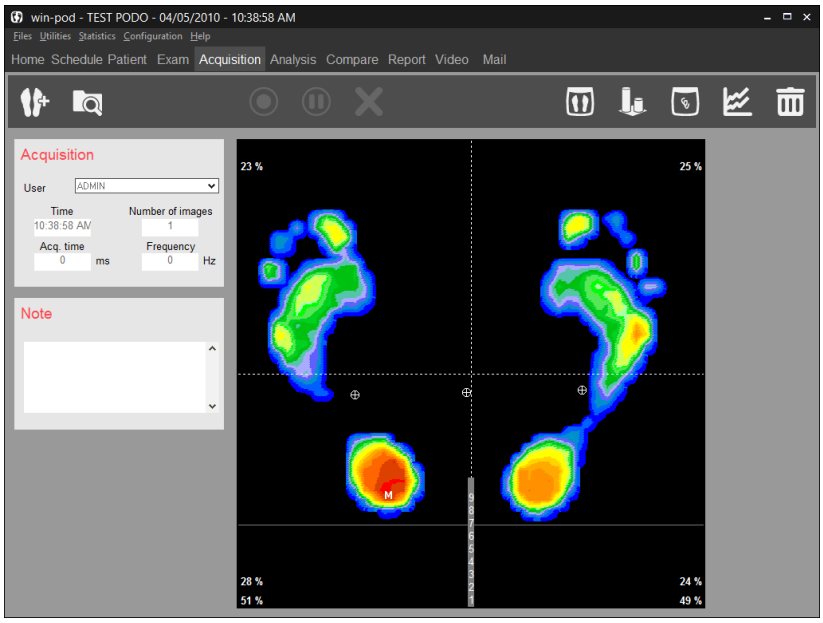
A measurement consists of the recording (**acquisition**) of data in three modes (Static, Dynamic (Gait), Postural).

For each acquisition, all the data are **automatically saved** on the hard disc.

A measurement is always related to a particular exam.

In the course of an exam, you can perform as many measurements as you want (for example, you can carry out 3 static acquisitions and 1 dynamic acquisition).

Note : The comments entered during the creation of an exam file are included on the analysis screens, comparison studies and prints (under the title).



Tool bar

New : Creating a new measurement file.

Search : Searching for previous recordings.

Modify : Modify an existing measurements file.

Validate.

Cancel.

Permanently delete a measurement.

"Acquisition" Tab

Tool bar

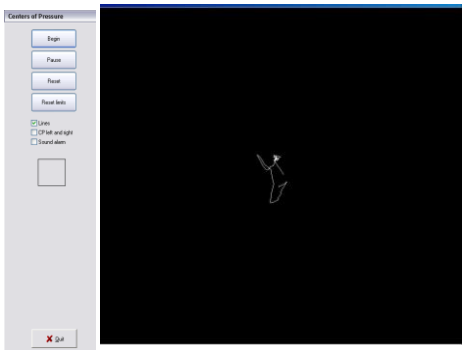
Plate Connection Test : View “real time” images of pressure mapping. This function is very useful to verify proper connection of system and to perform a quick visualization of foot mapping without saving the data.
Warning : This function does not allow acquisition.

View « real time » images of the **Center of Pressure** with an option to select a limited zone of sway to train the patient to control his/her body’s oscillations (Biofeed back).

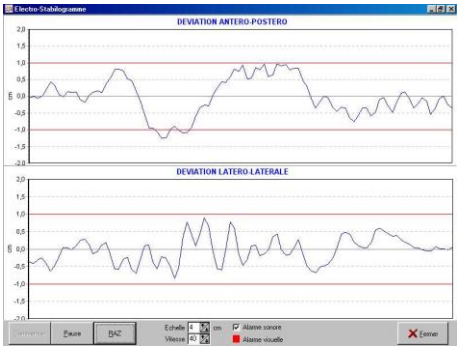
To delineate the zone, click on the screen and move the mouse diagonally toward the bottom while maintaining left click on the mouse to delineate the Center of Pressure (COP).

View simultaneously « real time » images of antero-posterior and left-right deviations. You can parameter speed, high and low limits for visual or sound alarm. (Biofeed back).

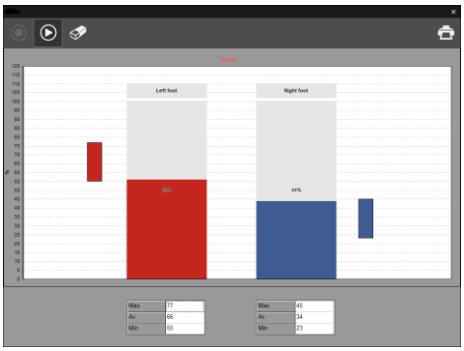
View « real time » images of left-right thrust.



Real Time Display of the COP



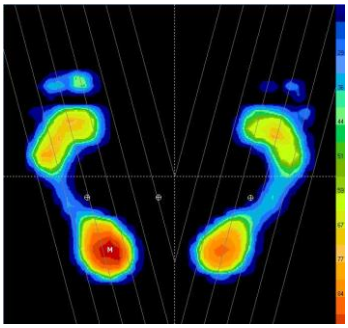
Antero-Posterior and Latero-lateral Deviations



Left-right thrust

- **« Shortcut Options »** : virtual landmarks can be inserted during acquisition

  To make landmarks appear on the screen select the following keys :



/ : 30° Axis lines

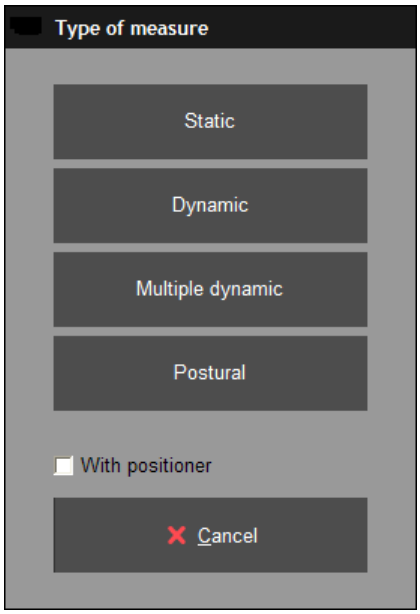
- : Horizontal lines to control heel alignment

+ : Orthogonal axis to divide the screen in 4 quadrants

"Acquisition" Tab

Creating a measurement (Acquisition)

You can select between 3 types of acquisition :



- ***Static*** : To record the bipedal cartography of the plantar pressures.

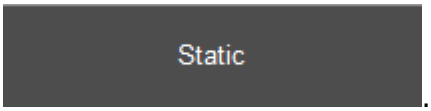
- ***Dynamic*** : To record the foot progression on the platform through the gait cycle. A high acquisition frequency (up to 200 images per second) allows an accurate analysis of the evolution of plantar support.

- ***Postural*** : Posturology is in a way "**the dynamic of static upright posture »**.
  Instead of recording the patient's plantar supports at a particular time to obtain a single (static) image, recordings of the patient's bipedal support are performed during an established time period in order to analyze the variations of plantar support and the displacement of the foot pressure centers.

  It is used for evaluating postural instability or analyzing plantar supports during movements for specific activities (sports, rehab, etc.).

"Acquisition" Tab

Static Acquisition

- ✓ If you use the win-pod positioner to position the patient, check **“With positioner”** in the "Type of Measurements" window
- ✓ Click on 

.

- ✓ Position the patient on the platform.

  On the screen, you will see a real time image of the cartography of the plantar pressures and the **Center of Pressure (displayed as ⊕)**

  You can type comments related to observations in the « Measurements Notes » section.

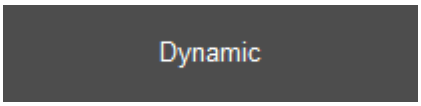
- ✓ Positioning the patient : in natural position or in standardized position using the virtual landmarks (see page 30) or the horizontal landmarks drawn on the surface of the platform. It is important to **align the heels** on the same line (use the horizontal half lines displayed behind each foot).
- ✓ Start acquisition by clicking on .

When the "Acquisition" key turns gray, the acquisition is completed and the patient may step down. Data is recorded on the computer disc. You can delete by clicking on .

You may now either start a new acquisition or go on to another operation.

"Acquisition" Tab

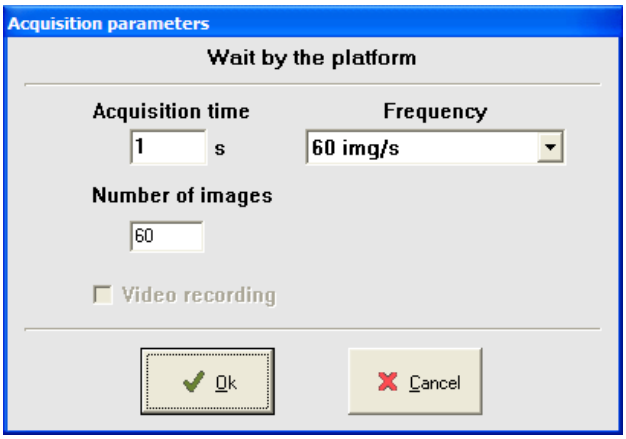
Basic Dynamic Acquisition (one gait cycle)

✓ Click on 

in the "Type of Measure" window.

✓ The **Acquisition Parameters** screen appears.

Instruct the patient to step down from platform.



Acquisition Parameters

Time (in seconds)

Time required by the patient to complete an entire step on the platform. Acquisition time is set by default at 1 second. If the patient's gait is extremely slow due to difficulty in moving, this parameter may be changed to 2 to 3 seconds. The "normal timing" for a full step progression is between 700 and 900 ms.

Frequency

Click on to select the acquisition frequency. This selection determines the number of images recorded per second (up to 200).

"Acquisition" Tab

Basic Dynamic Acquisition (one gait cycle)

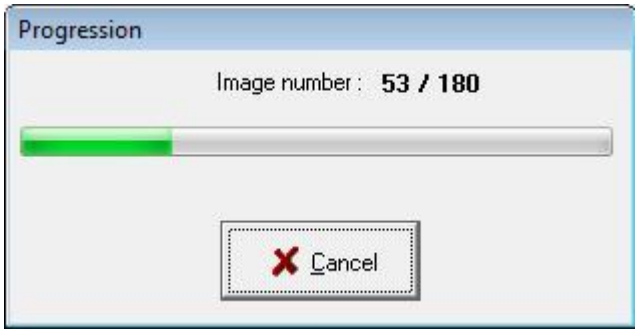
✓ Once you have selected the acquisition parameters, click on « OK ».

The following screen appears:

✓ Instruct the patient to step a couple times on the platform in order to feel relax and get accustomed to stepping properly on the platform.

✓ Then click « OK » to activate the platform and ask the patient to walk across the platform (striking the center portion of the platform) with the left foot.

The following screen appears.
Note : recording starts as soon as contact is made with the platform!



The patient may then step across the platform with the left foot (recording starts as soon as the heel strikes the platform).

✓ Repeat the same sequence for the **Right Foot**.

You may now either start a new acquisition or go on to another operation.

"Acquisition" Tab

Multiple Dynamic Acquisitions (Multiple Steps)

- ✓ Click on

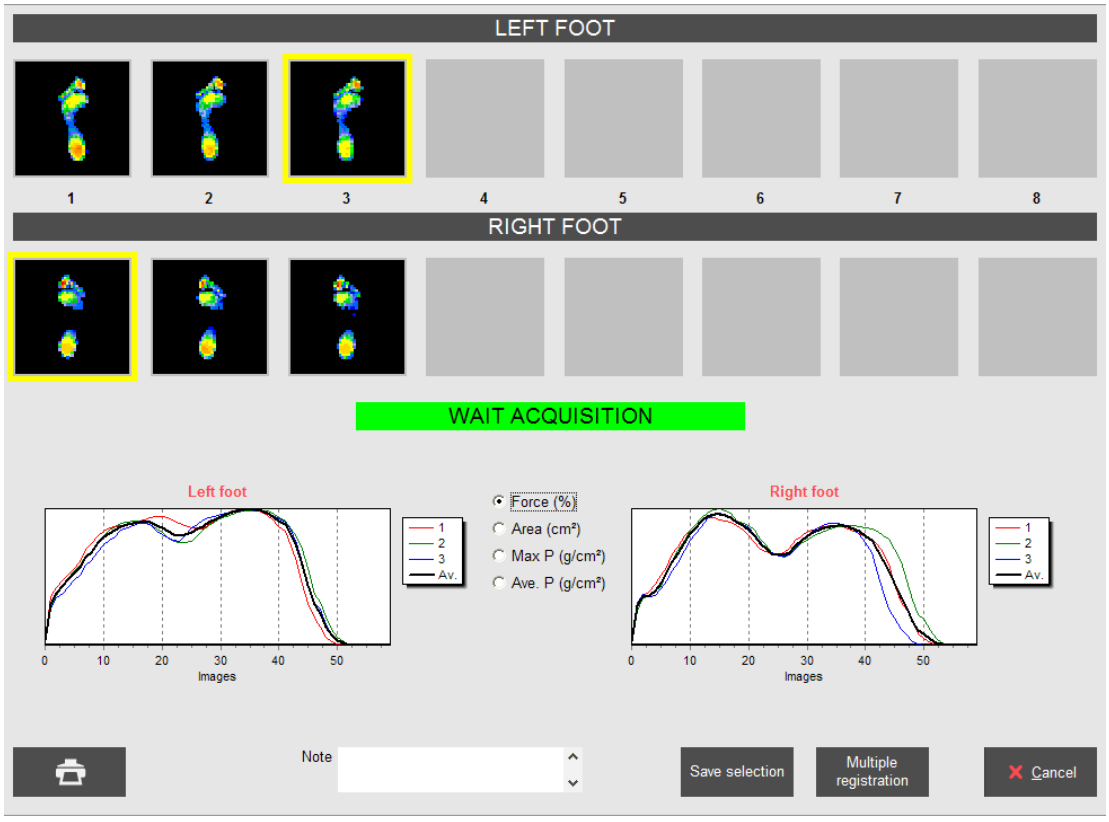
in the "Type of Measurements" window.
- ✓ Select your acquisition parameters (see page 33) and click on « OK ».
- ✓ When the screen appears (see below), the 16 icons "Left Foot" and "Right Foot" are empty. You can now start acquisitions.

Description

The Multi Steps Option allows acquiring up to 16 dynamic steps (8 for each foot). The software identifies automatically the left and right foot recordings.

From these multiple acquisitions, calculations and graphs can be displayed for each foot to describe the evolution of **force, maximum pressures, average pressures, surface areas** during the gait cycle as well as averages throughout the entire 16 step process.

The software automatically selects the right and left Foot Prints which are the closest to the average, allowing the user to visualize the 2 most significant steps.



"Acquisition" Tab

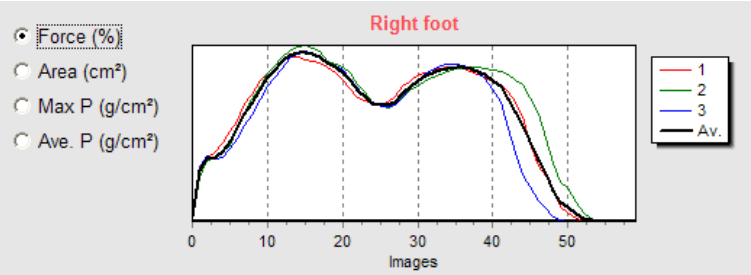
Multiple Dynamic Acquisitions (Multiple Steps)

Recording

- ✓ Walk on the platform successively withy the left and right foot (up to 8 steps for each foot) in which ever direction you prefer always striking the gray portion of the Win-Pod platform.

- ✓ Verify that the **automatic sequence "**Left Foot" and "Right Foot" is correct. In certain walking situations, the software may switch the **"**Left Foot" and "Right Foot" which will affect calculations and averages.
  In such instances, right click on the image which is improperly displayed and select proper action (delete, switch right/left).

- ✓ After verification and proper selection of images you want to keep (you can **zoom on each image** by double-clicking on it), click on one of the parameters (we recommend "**Force**").



  The software automatically selects the Left Foot and Right Foot images which are the closest to the average.

- ✓ Verify that the automatic selection of each foot is correct (yellow box).

- ✓ If you choose to modify this selection, you can select another image by clicking on it and moving the yellow box.

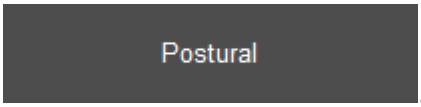
- ✓ You can also **print the screen** to keep a record of the images and graphs.

- ✓ Click on Save selection to save the 2 dynamic recordings selected in the patient file or on Multiple registration to save several couple "Left foot / Right foot".

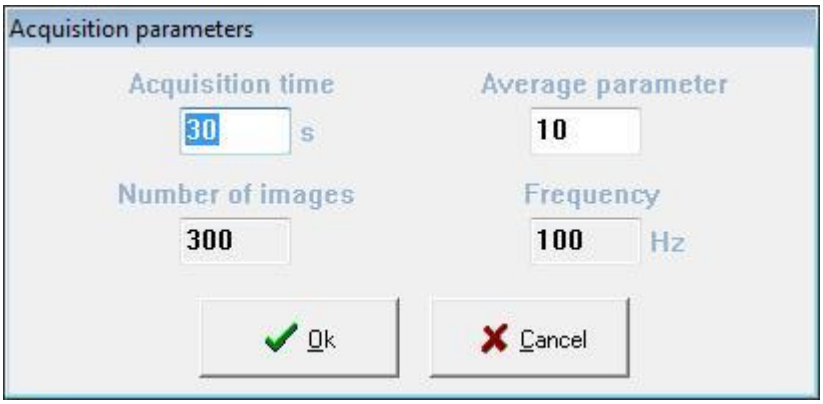
You may now either start a new acquisition or go on to another operation.

"Acquisition" Tab

Postural Acquisition

- ✓ If you use the win-pod positioner to position the patient, check **"With positioner"** in the "Type of Measure" window.
- ✓ Click on 

.
- ✓ **Position the patient on the platform and** click on to open the Acquisition Parameters screen :



Acquisition parameters

Time (in seconds)

The duration of the postural analysis recording is 30 seconds by default.

Average Parameters

Postural acquisition is always performed with a frequency of 100 Hz (100 images per second). The average parameter permits reducing the volume of data (limited to 2400) to be saved on the hard disk to avoid saturation:

$$\text{Number of images saved} = \frac{\text{Duration x 100}}{\text{Average Parameter}}$$

Example : Duration of acquisition : 30 seconds

Average Parameter	Acquired Images	Saved Images
100	300 x 100 = 3000	30
10	300 x 100 = 3000	300
1	300 x 100 = 3000	3000 = over limit

"Acquisition" Tab

Postural Acquisition

Acquisition Parameters

Number of images (non modifiable information)

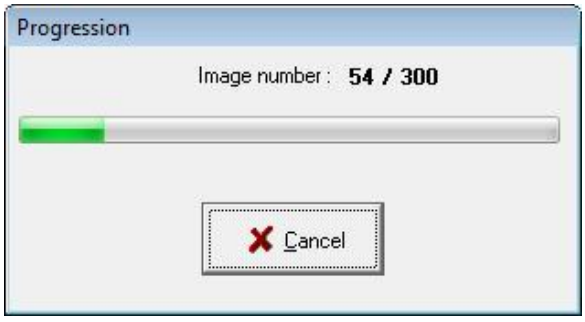
The number of images saved during a recording.

$$\text{Number of images} = \frac{\text{Duration} \times 100}{\text{Average Parameter}}$$

Frequency (non modifiable information)

Number of images recorded per second. This parameter cannot be modified. It is set at 100Hz.

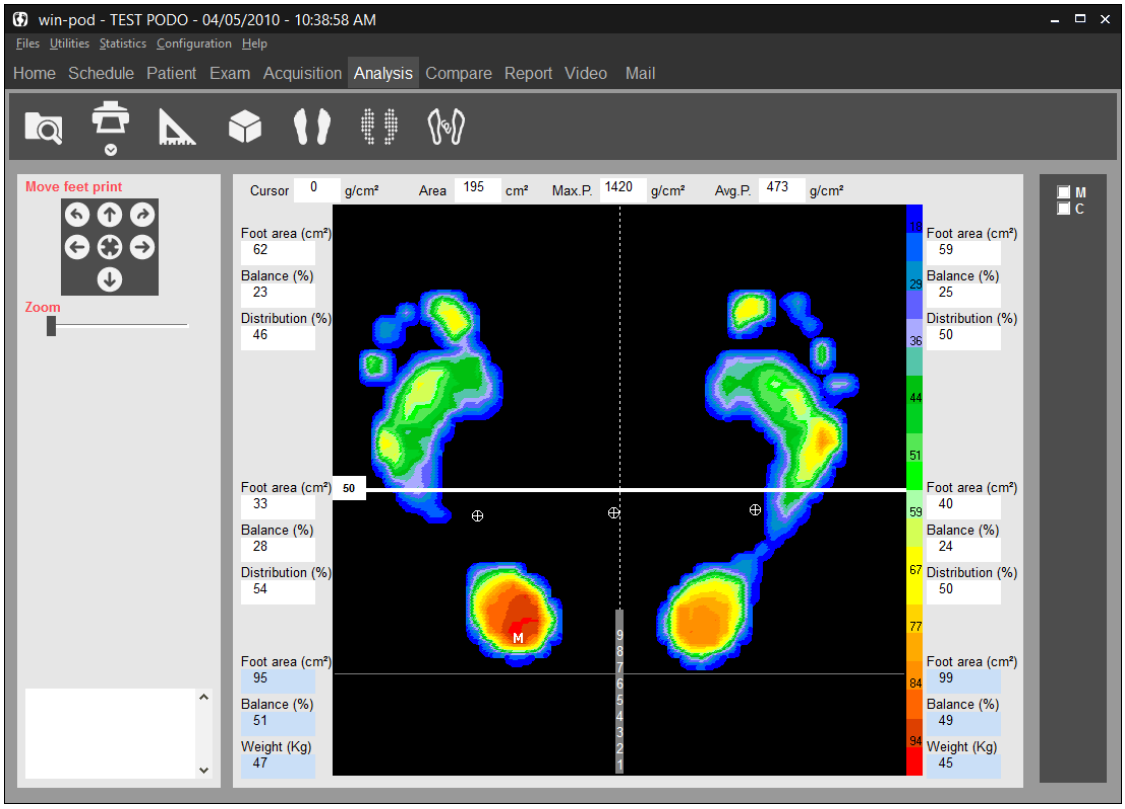
✓ When parameters are selected, click on « OK ». Acquisition starts :



Warning : Acquisitions use all computer resources and therefore other computer functions cannot be performed during acquisitions ! Particularly live applications such as: antivirus, scan modem, downloading, skype… and with applications requiring large memory use such as: large word files, keyboard, etc.

When acquisition is completed, you may now either start a new acquisition or go on to another operation.

Detailed Static Analysis



Tool Bar

Search : Opens the patient database to review a measurement.

Print. The arrow gives access to "Scale 1 Printing" menu (see page 83) and "Attaching documents to an exam" (see page 27).

Foot Print Measurements.

3D view.

Standard view.

Isopressure view.

Center of Pressure visualization.

Foot print centered and calculation of « Bessou Line Analysis » according to the center of pressure.

Foot print centered and calculation of « Bessou Line Analysis » according to the point of maximum pressure.

Detailed Static Analysis

Foot Print Analysis

Centering the Foot Print

These keys are used for framing or rotating the foot print for easier review when your patient is not correctly positioned during acquisition or to modify the forefoot/heel limits used for calculations by sectors.

Important Note : *When you re-frame a print, the initial print file is automatically replaced by a re-framed print file, on the hard disk (if you then open the print file, you will be able to see the re-framed print*).

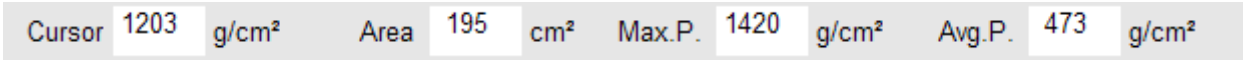
Cartography

The following information is displayed on the **cartography** :

: Point of maximum pressure (the value is displayed in *Max P.*

⊕ : These 3 marks depict the COP (Left foot, Right foot, and Center). The center ⊕ is the **Center of Pressure**.

Calculation on both feet



- ***Cursor*** : The pressure measured at the point where the cursor is located(g/cm²). Use the mouse to navigate this tool.
- ***Area*** : Surface Area covered by both feet (total support surface) in cm².
- ***Max P.*** : The maximum pressure point measured.
- ***Avg P.*** : Average pressure calculated over both feet.

Detailed Static Analysis

Foot Print Analysis

Calculation per quadrant

Several calculations are performed in each of the 4 podometer sectors as defined by an axis on the cartography.
A white Cross represents the axis on the platform.

The following parameters are available :

For each quadrant (in white)

- **Area** : Support surface in the quadrant (cm^2).
- ***Thrust*** : Percentage of Thrust in a quadrant, as a proportion of the total pressure through **both feet.**
- ***Distribution*** : Percentage of support in the front and back halves of the foot.

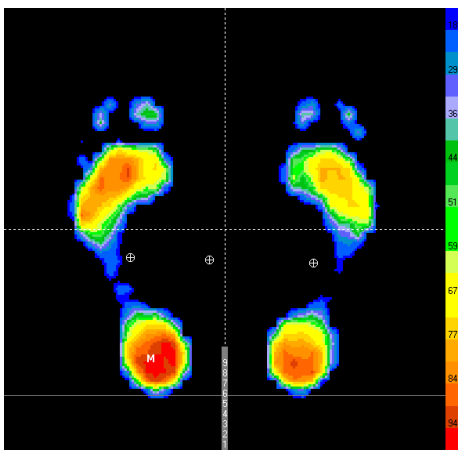
For each foot (in blue)

- **Area** : Support surface of the foot(cm^2).
- ***Thrust*** ; total thrust of the foot.
- ***Weight*** applied on the foot.

"Standard" View

The plantar pressures mapping is represented with a palette of different colors from blue (**low pressure**) to red (**high pressure**).

Note : The image resolution, screen display and the colors can be changed in the Configuration Menu : Configuration/Parameters/ Colors (see page 17).



You can select « Virtual Positioning » axis on the screen (see page 30).

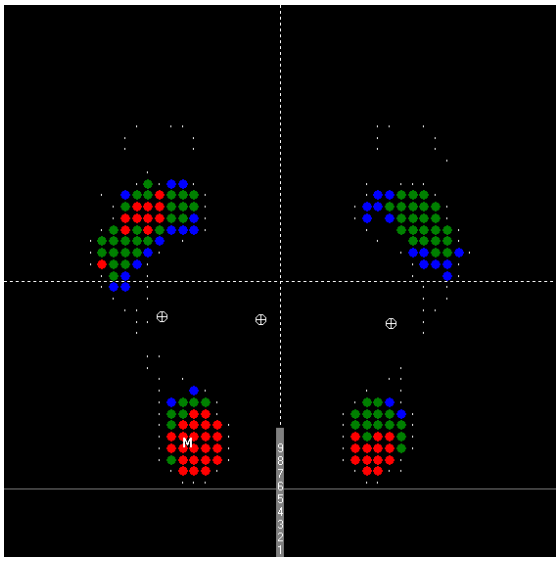
Detailed Static Analysis

"Isopressure" View

In the standard view, the different levels of plantar pressures are represented with a continuous palette of colors from blue to red.

In the isopressure view, there are only 3 colors available (red, green and blue) corresponding to 3 pressure intervals :

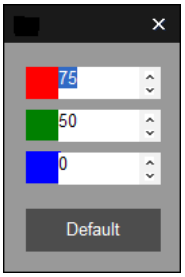
- Blue : Low pressures.
- Green : Intermediate pressures.
- Red : High pressures



The pressure level which determines each color can be adjusted by the user by **increasing or decreasing** the pressure level corresponding to a color by clicking on (see example below).

The value which is on the right of the color square represents the pressure level (expressed as a percentage of the maximum pressure point “M”).

Example :

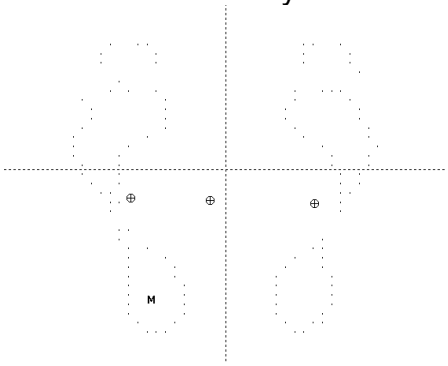


Red represents areas of pressure **above 75%** of the max pressure.
Green represents areas of pressure **between 50%** and **75%** of the max. pressure.
Blue represents area of pressure **between 0% and 50%** of the max. pressure.

Detailed Static Analysis

“Center of Pressure” View

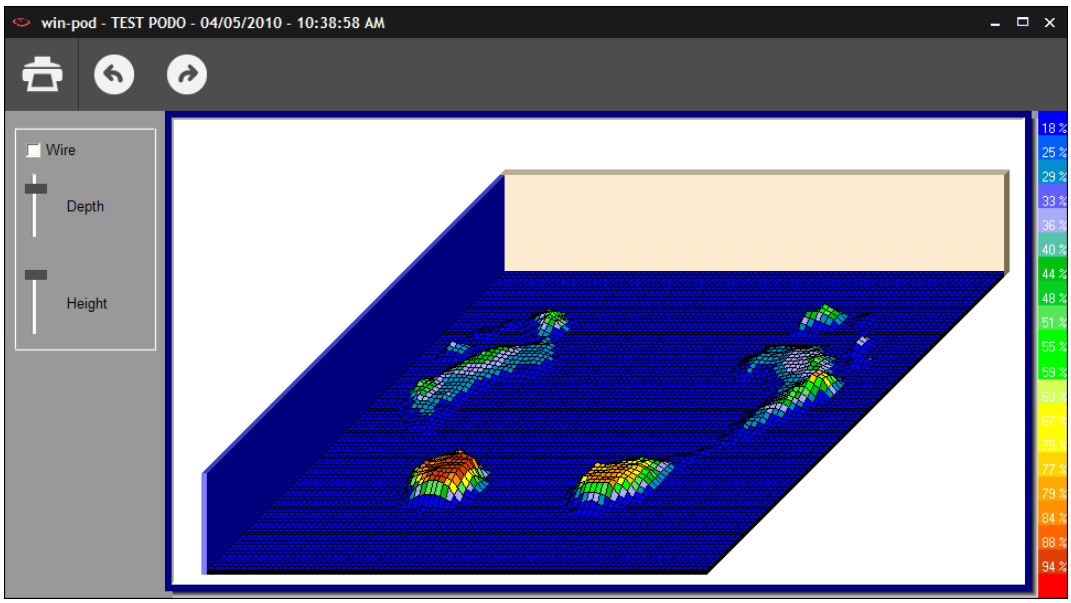
This mode is used for visualizing the foot shape, the centers of pressure (⊕) and the max. pressure point (M). It is often used in dynamic analysis to display the “Gail Line”.



"3D" View

The cartography of pressures is visualized in **3 dimensions**.
The object of this image is not to permit an accurate analysis of support, but rather to produce an easily understandable and highly visible image for the patient.

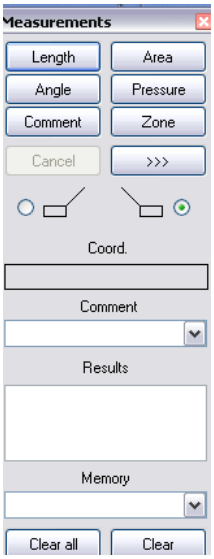
The picture can be moved and rotated by clicking on these arrows or by moving along the “Depth” cursor.



Detailed Static Analysis

"Measurements" Option

Measurements can be carried out and **comments** can be added on the cartographies It will appear on the screen and printing but **it is not recorded.**



Click on the option to select :

- ***Length*** : Measuring one or more distance on the cartography in cm.
  Point and click (once) to define the first point of the segment to be measured. Move mouse, point at a second point, then click.

- ***Angle*** : Measuring an angle on the cartography. Point and click the 3 points forming the 2 generating lines of the angle to be measured.

- ***Area*** : Click once, and then move mouse to form an ellipse. Click a second time to display the surface area within the ellipse.

Detailed Static Analysis

"Measurements" Option

- ***Zone*** : **Maximum Pressure, Average Pressure, Surface Area, Timing** calculations in a selected area (following the captors' distribution).
  To open a zone, click on the upper left corner of the selected zone, keep the pressure on the mouse and move it towards the right lower corner. When you release the mouse, the measurements values will appear.

  Pressure : Click on point on the cartography to display the pressure at that particular point. You can click on the box with pressure value to move it and then double click to leave it at the position you selected.

- ***>>>*** : Insert an **icon** directly on the foot print.

- ***Comment*** : Used for inserting comments on the cartography (will appear when printing)

  - ✓ Click on

  - ✓ Click on the beginning of the line

  - ✓ Type comment on the selected foot print area.
  - ✓ Click on point to insert the comment.
  - ✓ Move mouse to position comment box.
  - ✓ Click a second time to have comment fixed.

- ***Results*** : Displays the results of the last measurement performed (length, angle or surface).

- ***Coord***. : Displays the Cartesian coordinates (x,y) of the position of the mouse cursor.

- ***Clear*** : Deletes the **last** performed measurements.

- ***Clear all*** : Deletes **all** the performed measurements.

Detailed Static Analysis

"Lines of Bessou"

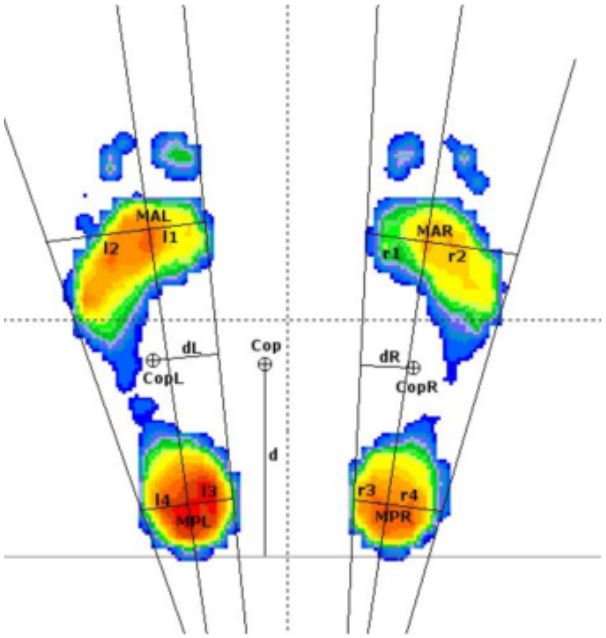
Presentation

Professor Paul Bessou, affiliated with the Podiatry School of Toulouse, France presented new description methods to clearly define static foot prints and particularly compare to measurements with or without treatment plans (for example with or without orthotics).

In the "Detailed Analysis » tab section, you can click on ☐ M, ☐ C the following lines and calculations appear :

- Internal and external foot tangents.
- The lines passing through the fore foot and heel centers of pressure (☐ C).
- The lines passing through the maximum pressure points in the fore foot and heel (☐ M).
- The line connecting the back of the heels (which should be aligned)

A reference was given for each of these parameters :



MAL : Max Anterior Left
MPL : Max Posterior Left
MAR : Max Anterior Right
MPR : Max Posterior Right

l1 : MAL – internal left tangent distance
l2 : MAL – external left tangent distance
l3 : MPL – internal left tangent distance
l4 : MPL – external left tangent distance

r1 : MAR – internal right tangent distance
r2 : MAR – external right tangent distance
r3 : MPR – internal right tangent distance
r4 : MPR – internal right tangent distance

Cop : Center of pressure
CopL : Center of pressure Left
CopR : Center of pressure Right

d : Cop and heels line distance
dL : CopL and internal tangent distance
dR : CopR and internal tangent distance
Angle : angle between internal tangents

Find out how to use the references on the next page.

Detailed Static Analysis

"Lines of Bessou"

Use

From the lines automatically displayed, the software calculates multiple measurements of distances to define the forefoot degrees of **rotation** (**l1** and **l2** for the left foot, **r1** and **r2** for the right foot) or for the heel (**l3** and **l4**, **r3** and **r4**).

The calculation of the **distance "d"** between the line posterior to the heels and the global center of pressure provide information on the antero posterior positioning of the patient: the greater the distance the greater the anterior positioning of the patient.

Finally, between the distances **dL** and **dR** between the lines passing through the global center of pressure of each foot and the internal tangents quantifies the global rotation of each foot.

The explanation of these parameters is extensive however they are really **easy to use** and it allows quantifying the effects of treatments on patients:

- ✓ Perform to successive recordings that you want to compare (typically with and without orthotics).
- ✓ Display the « lines of Bessou" according to M or C.
- ✓ Select the parameters you want to study and compare them with the results of the 2nd recording.

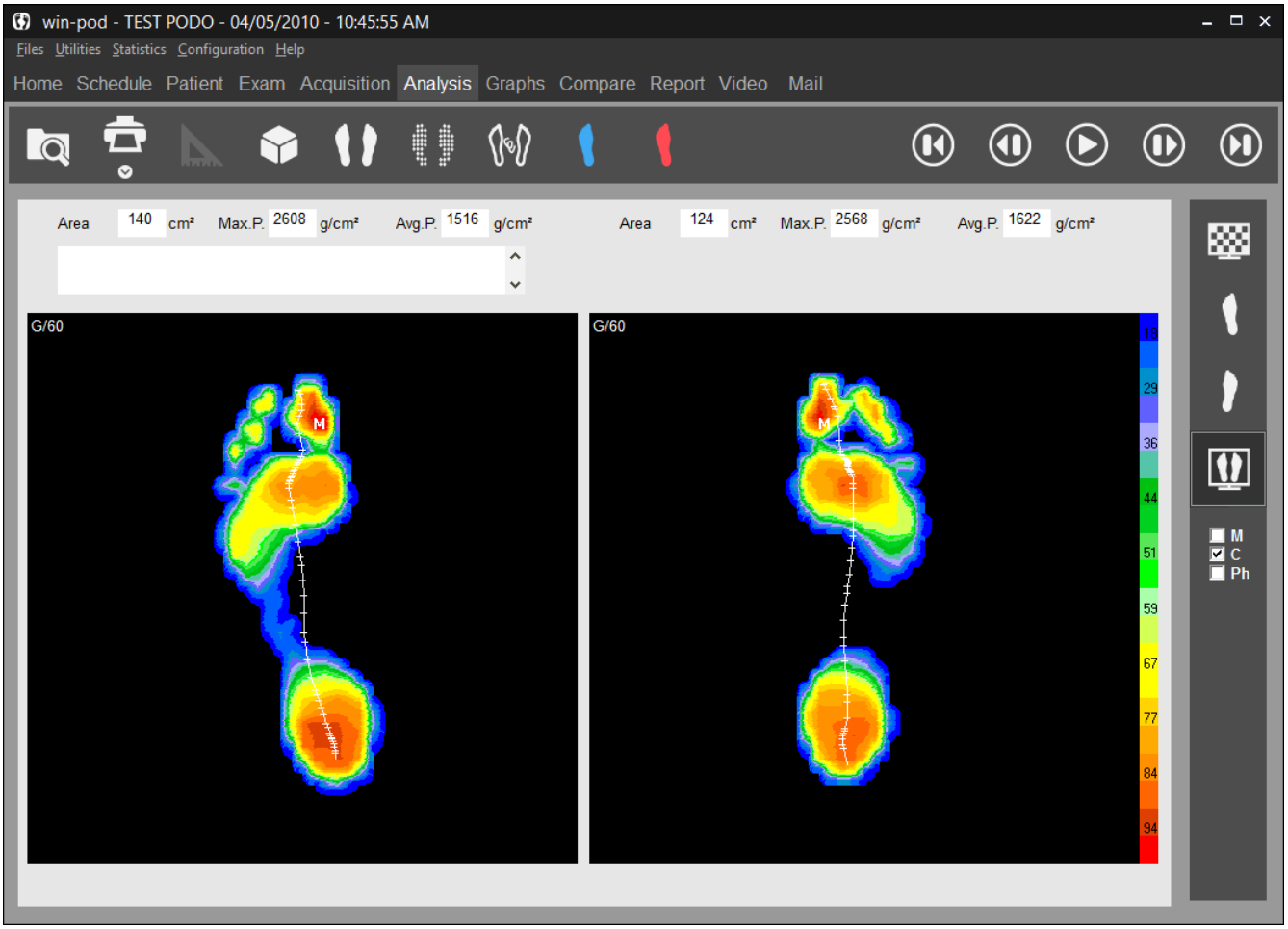
For example for the correction of excessive forefoot external rotation, compare the distances r1/r2 and l1/l2.

Similarly, study the evaluation of the parameter "d" to verify the effect of the treatment on the patient's antero-posterior position.

In 2006, the National Association for Research In Podiatry (ANREP) launched a study with MEDICAPTEURS and the French post graduate institutes on the effect of the supination corner on plantar pressures.

The WIN-POD system was selected for this particular study and the software was modified to include the « lines of Bessou » used for quantifying plantar pressure changes.

Detailed Dynamic Analysis



Detailed Dynamic Analysis

Tool bar

Search : Access to patient file to load measurement.

Print. The arrow gives access to "Scale 1 Printing" menu (see page 83) and "Attaching documents to an exam" (see page 27).

Foot print measurements.

3D view.

Standard view.

Isopressure view.

Foot Outline view, Gait line and Max line.

Contact duration.

Impulse view (Time x Pressure).

Start or stop the step progress.

and In mode pause, it permits to see a forward or backward image by image replay.

Displays the first image of the step progress.

Displays the mean results of all the progress images(global view).

Left Foot Display.

Right Foot Display.

2 Feet Display.

Mosaic : display all the progress images on one screen.

Displays the curve of displacement of the Max. support(Maxline).

Displays the curve of displacement of the center of thrust (Gaitline).

Displays the three phases of the step.

Detailed Dynamic Analysis

Foot Print Analysis

Tools of visualization

- ***Moving the foot print***:

These buttons allow to center or rotate the footprint when the cartography is not properly positioned.

Important Note : when you perform foot print framing, the initial foot print file is automatically replaced on the hard disc with the properly framed file (if you check this file later, you will view the properly centered view).

- ***Speed of progression*** : by moving the cursor, the speed of image display can be changed.
- **The 2 feet display** with disable some functionalities like the foot print measurements. It is necessary to go to the monopodal display to reach these functions.

On the cartography

On the cartography, the following information is available :

: Time elapsed since the beginning of acquisition. Expressed in milliseconds (ms).

If the ***and*** ***are not selected :***

: Point of maximum pressure.

⊕ : Centre of de thrust calculated on the displayed image.

If ***and/or*** ***is/are selected :***

Visualization of the **Gaitline** (curve representing the evolution of the thrust center) and/or the curve representing the evolution of maximum point of support (**Maxline**).

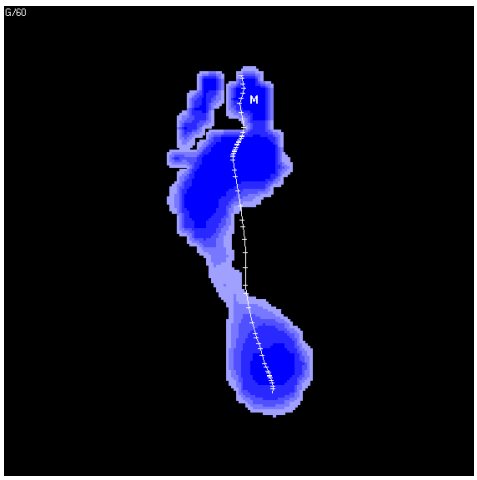
Detailed Dynamic Analysis

Foot Print Analysis

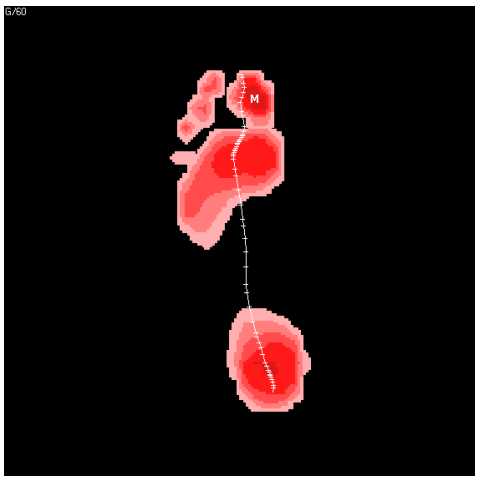
Calculations on displayed image

- ***Cursor*** : The pressure value of the support point which is pointed at with the mouse arrow is displayed in this box (g/cm²).
- ***Area*** : Total surface area of support (cm²).
- ***MaxP.*** : Value of the M point: maximum Pressure (g/cm²).
- ***Avg P.*** : Average Pressure.

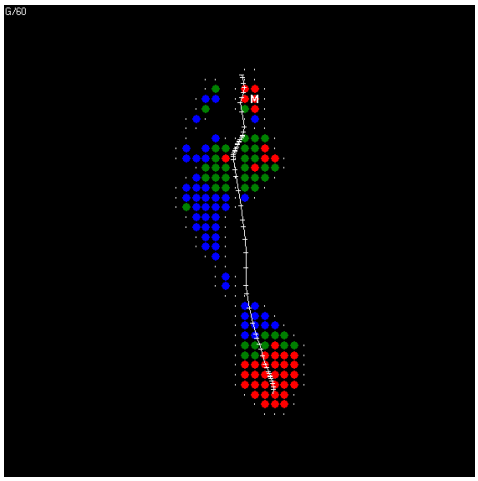
Detailed Dynamic Analysis



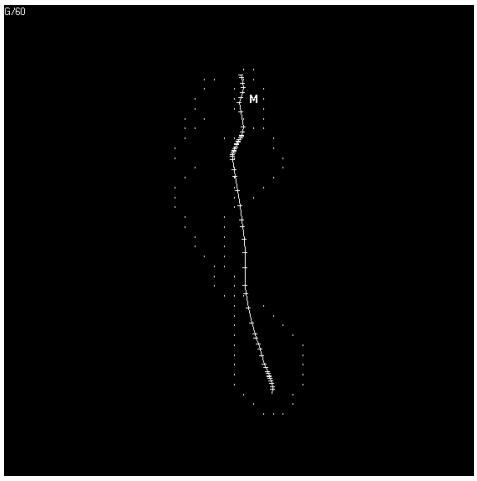
Contact Duration



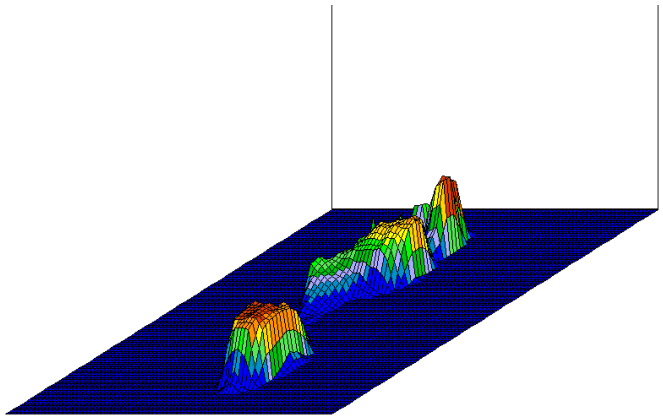
Impulse



Isopressure



Center of Pressure



3D

Detailed Dynamic Analysis

Multiple Views

Standard view (See page 41).

Isopressure view (See page 42).

Center of Pressure view (See page 43).

« Duration of contact » view.

This image displays the time length of foot support in each foot area during the step process : the darker the blue color, the longer the foot support lasts.

"Time x Pressure" view (or "Impulse").

In dynamic analysis, hyper pressures and duration of contact can be studied, however the most interesting parameter is the "**Time x Pressure**" which defines "**Quantity of Charge**" applied for each foot area and allows to outline potential “risk areas” (particularly as a preventive measure for the “diabetic foot”).

The cartography "**Time x Pressure**" can be easily analyzed : the darker the red color, the greater the charge quantity.

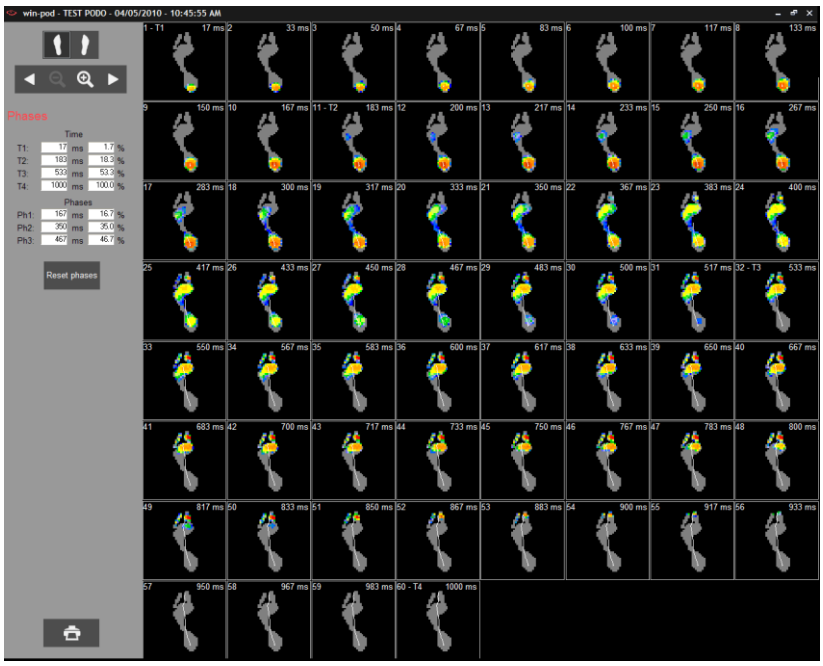
3D view (see page 43).

Measurements options (see page 44).

Detailed Dynamic Analysis

"Mosaic" View

Display all the successive images of the step progression :



Select the foot to be displayed.

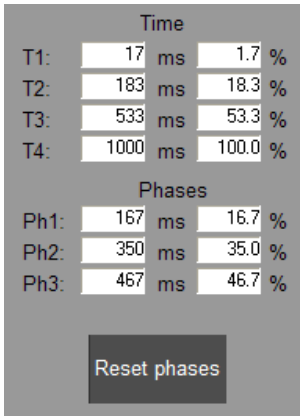
Front Zoom.

Back Zoom.

and

Forward or backward rewinding.

Printing



Note : when you double-click an image from mosaic, you can directly open a detailed analysis of this image.

If you click on an image you can position 4 cursors (T1 to T4). The software will calculate the time between the cursors either in ms or in % to the whole duration of the step progress.
This option is very useful to estimate the "**timing** "**of the step progress by selecting the heel strike, plantar, and toe off phases.**

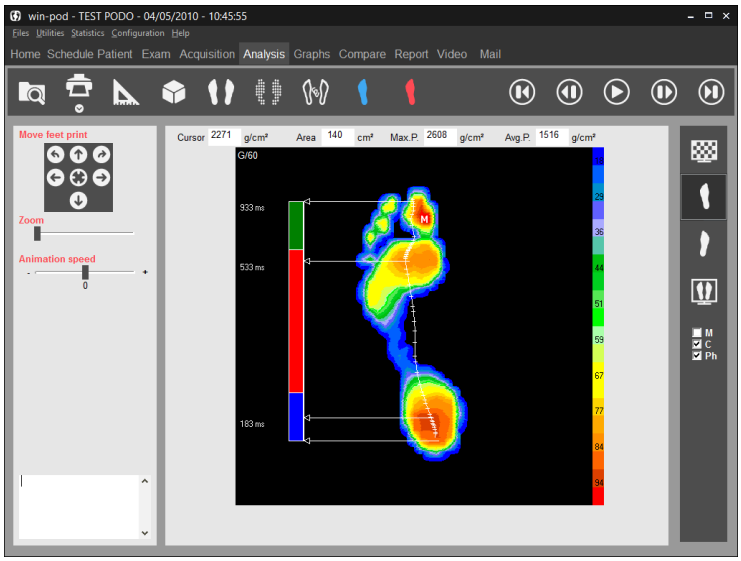
Click on Reset phases to clear the calculations for these phases.

Detailed Dynamic Analysis

Step Phases Analysis

By clicking on

the 3 phases of the step can be defined (Heel strike, Plantar, and Toe off phase) and compared with personalized normative values.



For this function, there are 2 steps :

1. Initializing normative data

The duration of each of the step phases can be captured by clicking successively on : *Configuration/Parameters/General* (see page 16).

By default, the phases' distribution are : 20%/60%20%.

2. Outline the 3 phases

- ✓ Click on . Select a foot.
- ✓ Click on

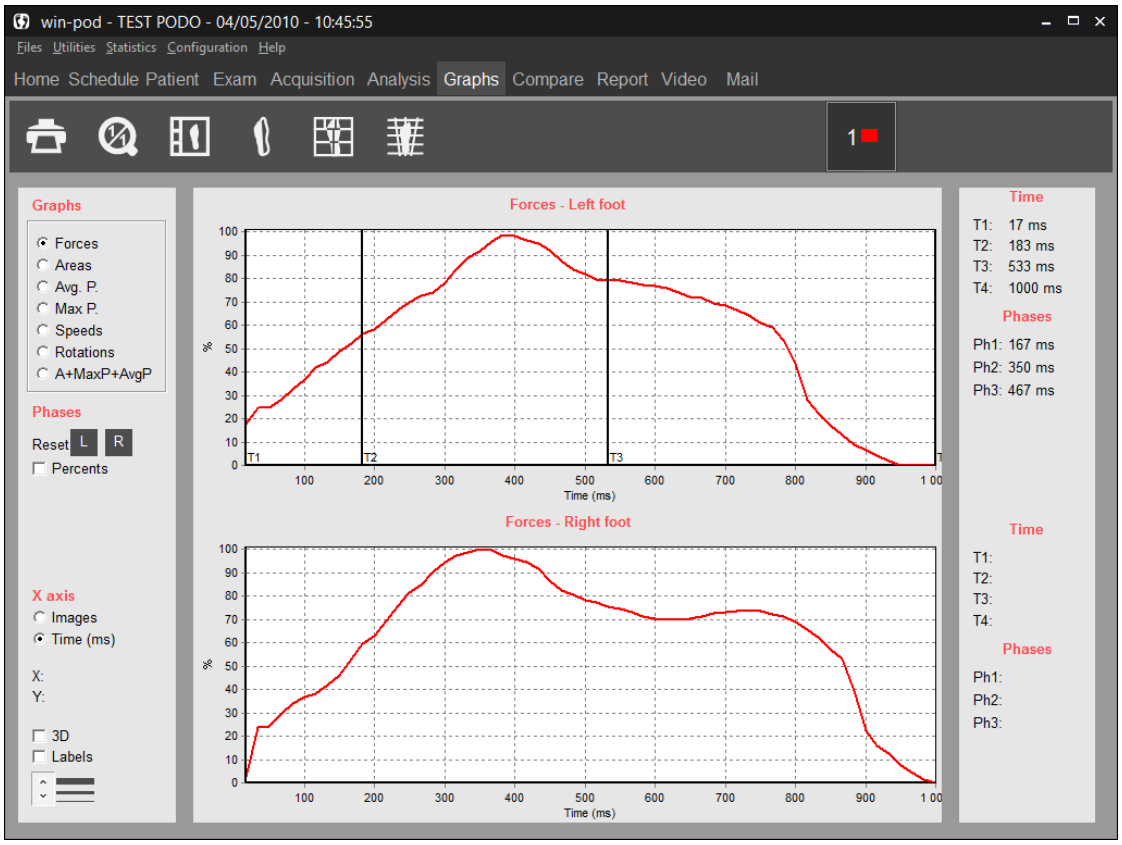
and then click on the transition images to position the two cursors to delineate the three phases Heel strike **(T2)** and the end of plantar **(T3)**. The cursorsT1 and T4 relate to the beginning and end of the step and are automatically positioned on the display.
- ✓ Perform the same procedures on the other foot.
- ✓ Return to the “detailed analysis” view and click on

for visualizing the 3 phases and compare them to the normative data. Click on to display and compare the 2 feet.

Graphs – Dynamic

A certain number of parameters are calculated for each image of the dynamic progress (surface, Max. Pressure, Aver. Pressure, Thrust center, etc).

The evolution of these parameters throughout the step cycle can be visualized by selecting the "Graphs" tab.



Tool Bar

1 : 1 scale. You can zoom in on a graph by opening a rectangle with the mouse on the selected portion of the graph to be enlarged. This button allows bringing back the original image.

Printing graphs.

Synthesis of the left foot and the right foot.

Analysis 7 areas.

Analysis 12 areas.

Medio-Lateral Analysis.

Graphs – Dynamic

Selecting a graph

Click on the curve you want to be displayed :

- ***Forces*** : Evolution of the force during step progression (%).
- ***Area*** : Evolution of the support surface during step progression (cm^2).
- ***Avg. P.*** : Evolution of the average pressure calculated for each image (kg/cm^2).
- ***Max P.*** : Evolution of the value of the « Max.pressure» through the images of the step progression (kg/cm^2).
- ***Speed*** : Variation in speed during step progression. A very « irregular » speed curve betrays an irregularity in the gait/walk that may be due to poor acquisition (patient's hesitation).
- ***Rotation*** : Position of the thrust center line as a proportion of the theoretical axis of progression. This graph is valid only if the patient steps along the platform axis or parallel to it.
- ***Area + Max.P. + Avg.P.*** : Superposition on the same screen of the area, average pressure and maximum pressure graphs.

Graphic options

- ***X axis*** : For each dynamic analysis graph, you can select to display "Images" or "Temps" (en ms) on the abscissa axis.
- ***3D*** : 3D Visualization of the graphs.
- ***Labels*** : Displays the values of each image (to be used in conjunction with the zoom function to facilitate reading the values).
- : Selecting the thickness of the graph lines.
- ***X, Y*** : Cartesian coordinates for each point you select on the graph.

Graphs – Dynamic

References

In order to assist you with the graphs interpretation, we have carried out a **statistical study** of several hundreds of patients.

Selecting « a wide spectrum » sampling enables us to determine the low and high values reference graphs for several parameters.

By clicking on "**Visibles**" in the "**References**" area 2 dotted graphs (Min and Max) are displayed for each foot.

You must "**re-frame**" these graphs according to the patient's step progression.

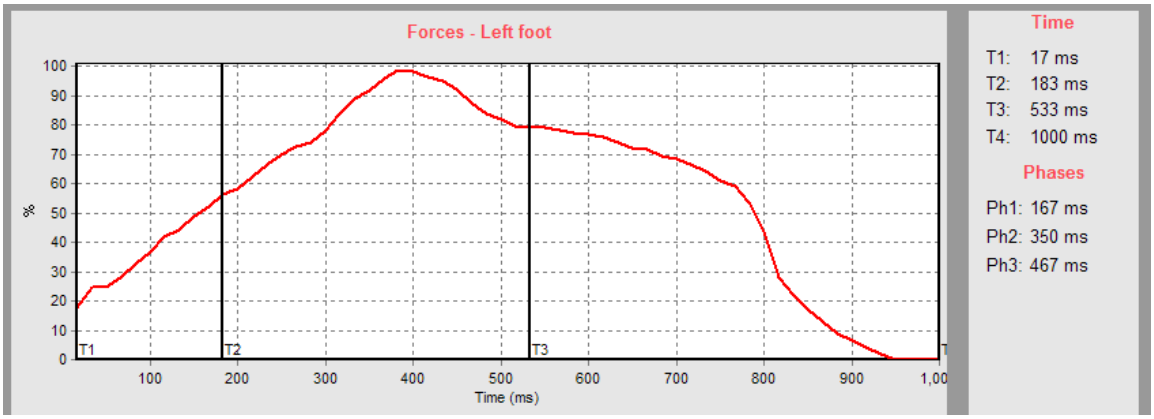
Use the 4 arrow keys keyboards , one on the left for the left foot and one on the right for the right foot.

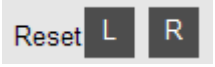
The objective is to better center the patient's graphs with the Min and Max graphs.

The purpose of the reference graphs is not to establish an automatic diagnosis but rather **to draw your attention to a specific phase of the step process** where a problem may be detected and to refine your analysis. These references also provide a general view of what a "normal" graph should look like.

Support phases calculations

By clicking on different points on the graph's abscissa, you can position 4 cursors (T1 to T4) which allow to measure the duration of each phase of the step progression either in ms or in % of the entire duration of the step process:



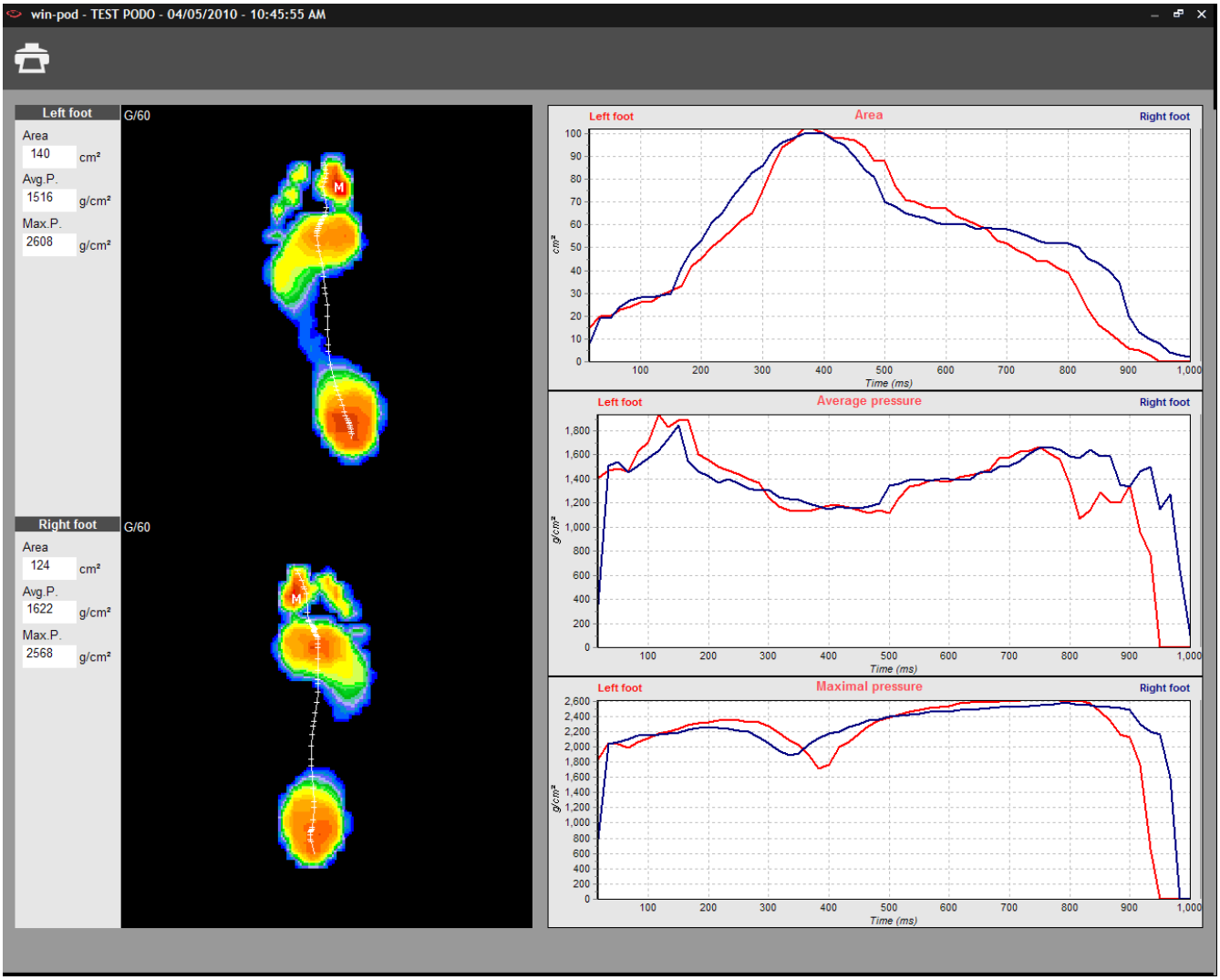
The keys 

allow resetting the different phases, for the left foot and for the right foot.

Graphs – Dynamic

Left foot and right foot synthesis

This function allows to on the same screen the Area, Avg. P. and Max. P graphs with the step progression view. This is a great page to print to provide **a report of the dynamic analysis on only one page**.

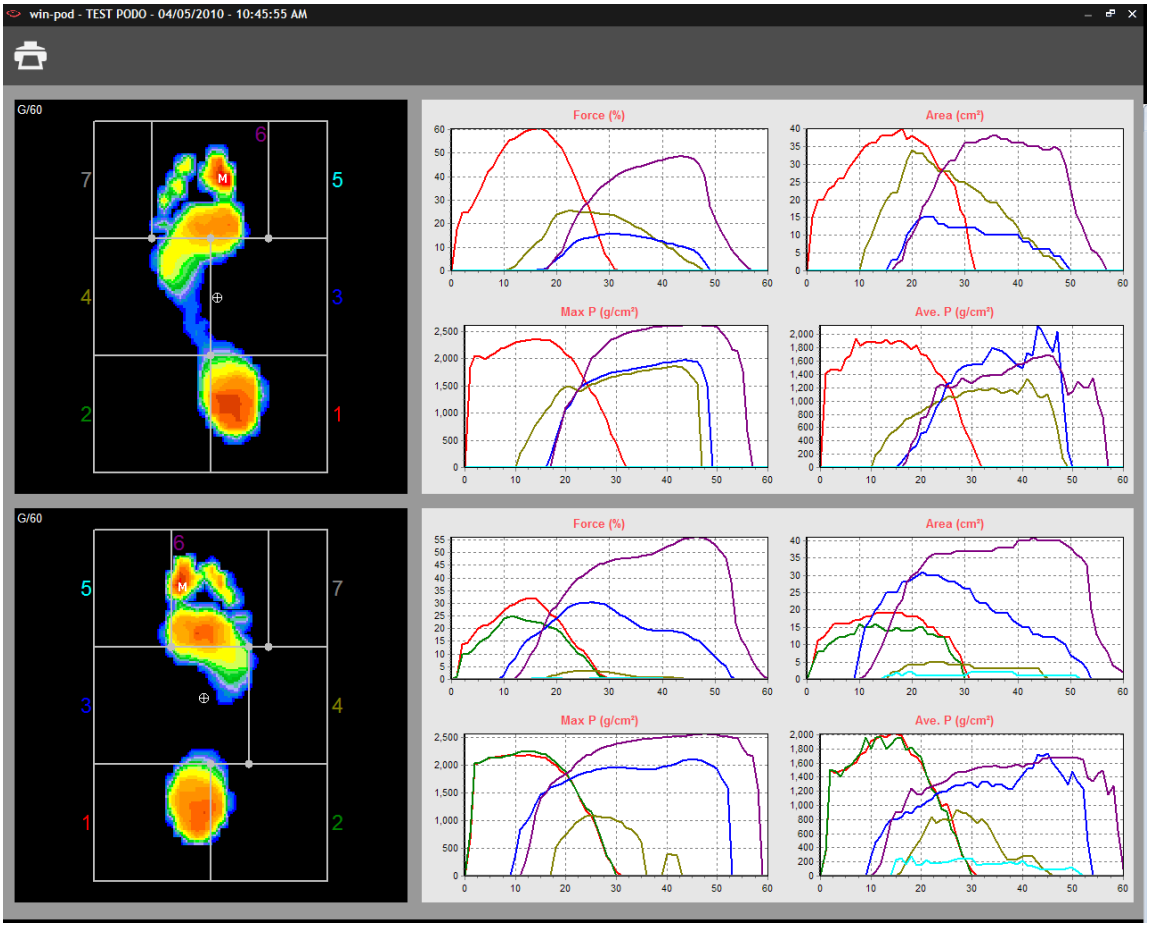


Note : You have the option to visualize the foot pressure mapping (on the left side of the screen) at any time of the step process. Just click on the graph, hold and move the mouse from left to right.
To see the global image, move the cursor to the right side of the graphs.

Graphs – Dynamic

Analysis 7 areas

This function allows studying the evolution of several parameters in selected areas of the foot.



The foot is divided into **7 areas** which can be re-sized by the user (click and shift the intersection points of the frame). A specific number and color is associated with each area and correspond to the same color graphs.

The progression of **forces**, **areas**, **maximum pressures** and **average pressures** are displayed on the right portion of the screen for each area.

Note : You have the option to visualize the foot pressure mapping (on the left side of the screen) at any time of the step process. Just click on the graph, hold and move the mouse from left to right.

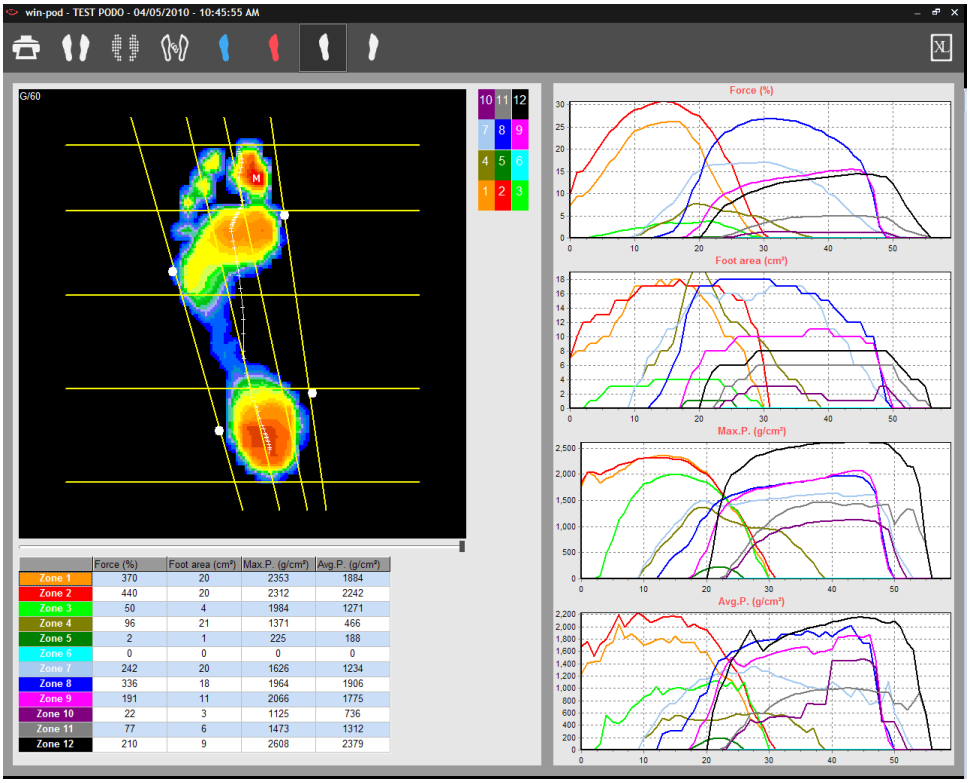
To see the global image, move the cursor to the right side of the graphs.

This advanced function of the dynamic analysis is very helpful to study the pronation / supination phenomena and the timing of the step process.

Graphs – Dynamic

Analysis 12 areas

This function allows studying the evolution of several parameters in selected areas of the foot.



	Force (%)	Foot area (cm²)	Max.P. (g/cm²)	Avg.P. (g/cm²)
Zone 1	370	20	2353	1884
Zone 2	440	20	2312	2242
Zone 3	50	4	1984	1271
Zone 4	96	21	1371	466
Zone 5	2	1	225	188
Zone 6	0	0	0	0
Zone 7	242	20	1626	1234
Zone 8	336	18	1964	1906
Zone 9	191	11	2066	1775
Zone 10	22	3	1125	736
Zone 11	77	6	1473	1312
Zone 12	210	9	2608	2379

The foot is divided into **12 areas**. From the anterior to the posterior portion of the foot, the foot is divided in 4 bands : the toes, the fore foot, the medial foot and the heel. From the lateral to the medial portion, the foot is divided in 3 areas determined by the line of the mechanical axis of the foot and the line bisecting the mechanical axis and the external edges of the foot. Normally these lines will position themselves automatically on the image however you can adjust their position manually by clicking on the white points and moving the line with the mouse.

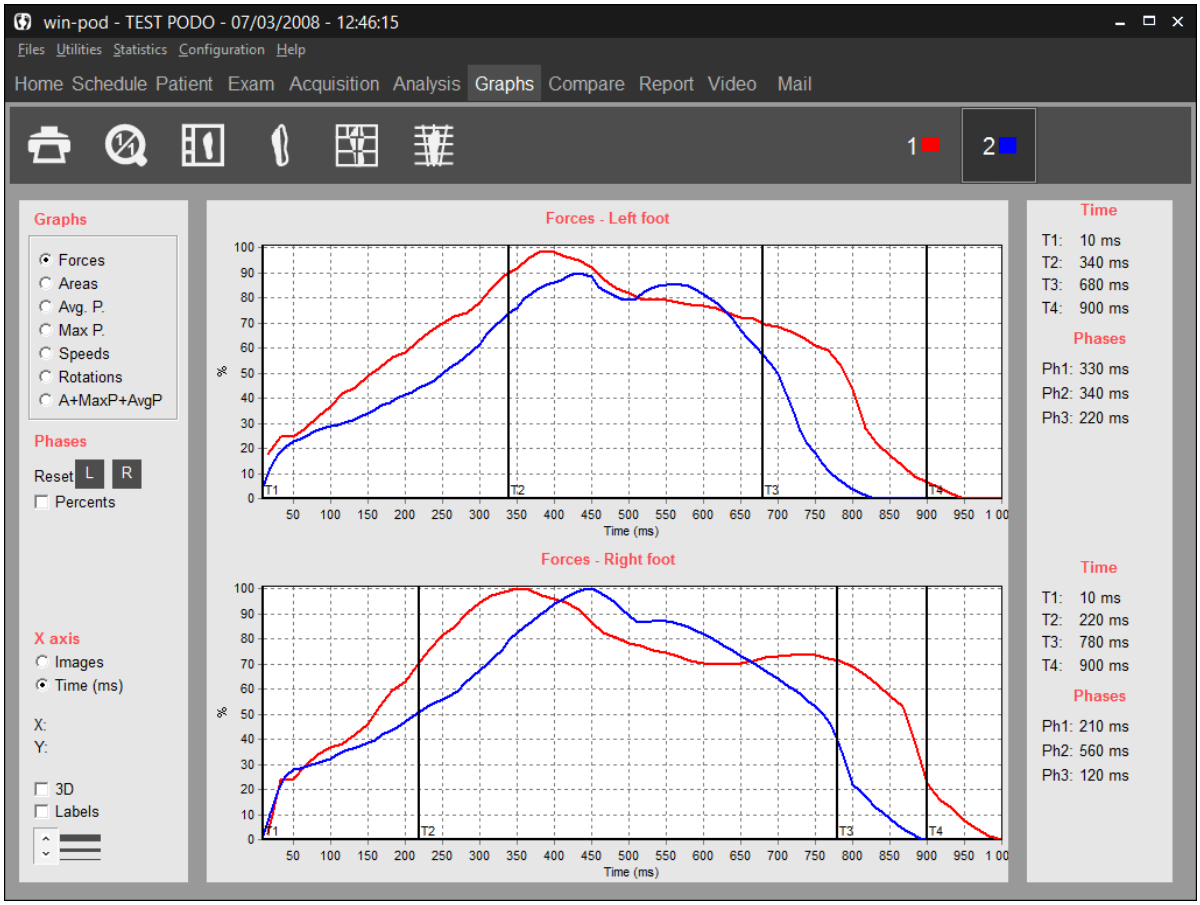
A numbered and colored reference table assigns a particular number and color for each particular area of the foot. To visualize a particular area, you just need to click on the colored and numbered box corresponding in the table located next to the foot analysis display.

On the right portion of the screen, graphs display the evolution of the **forces**, **surfaces**, **pressures maximum** and **average pressures over time**for each area. On the left lower portion of the screen a table displays these parameters for each zone for the selected image of the foot. To select a different image of the foot in the gait cycle, just move the cursor under the image.

Graphs – Dynamic

Comparing 2 measurements

When 2 dynamic recordings are loaded in the "Compare" tab section, you can superimpose the graphs associated with each recording in the "Graphs" tab :



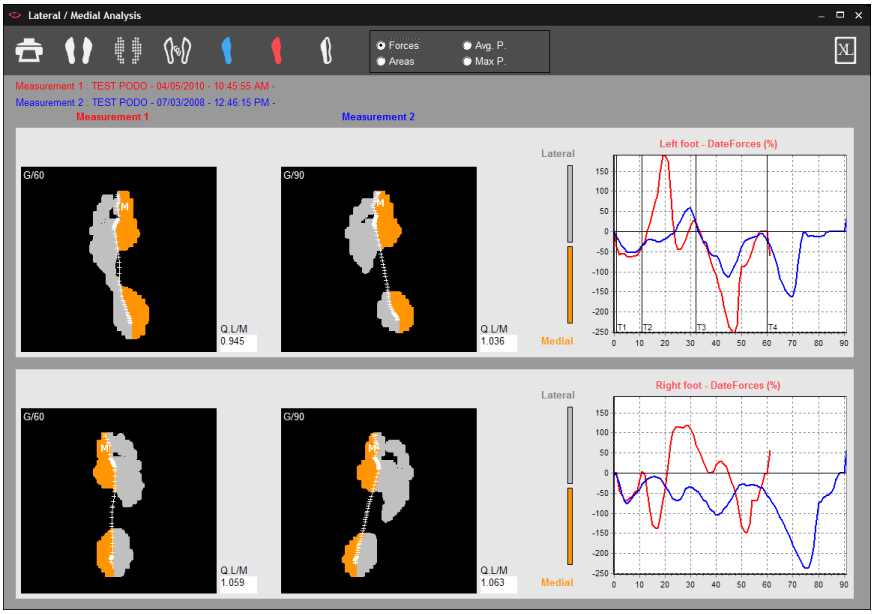
The icons allow managing the measurements to be compared.

- By bringing the mouse on these icons, a message is displayed indicating the name, first name, date and time of the recording.
- When a button is selected, the active measurements which are the measurements displayed in the "Detailed Analysis" tab or the measurements displayed when clicking on the icon or .
- To stop visualizing a measurement (measurement is still loaded in the software), right click on the corresponding icon. A « cross-like » icon appears on the screen to replace the previous icon . Follow the same procedure to visualize the measurements again.

Graphs – Dynamic

Medio-Lateral Analysis

This function allows studying the evolution of several parameters in selected medial and lateral areas of the foot.



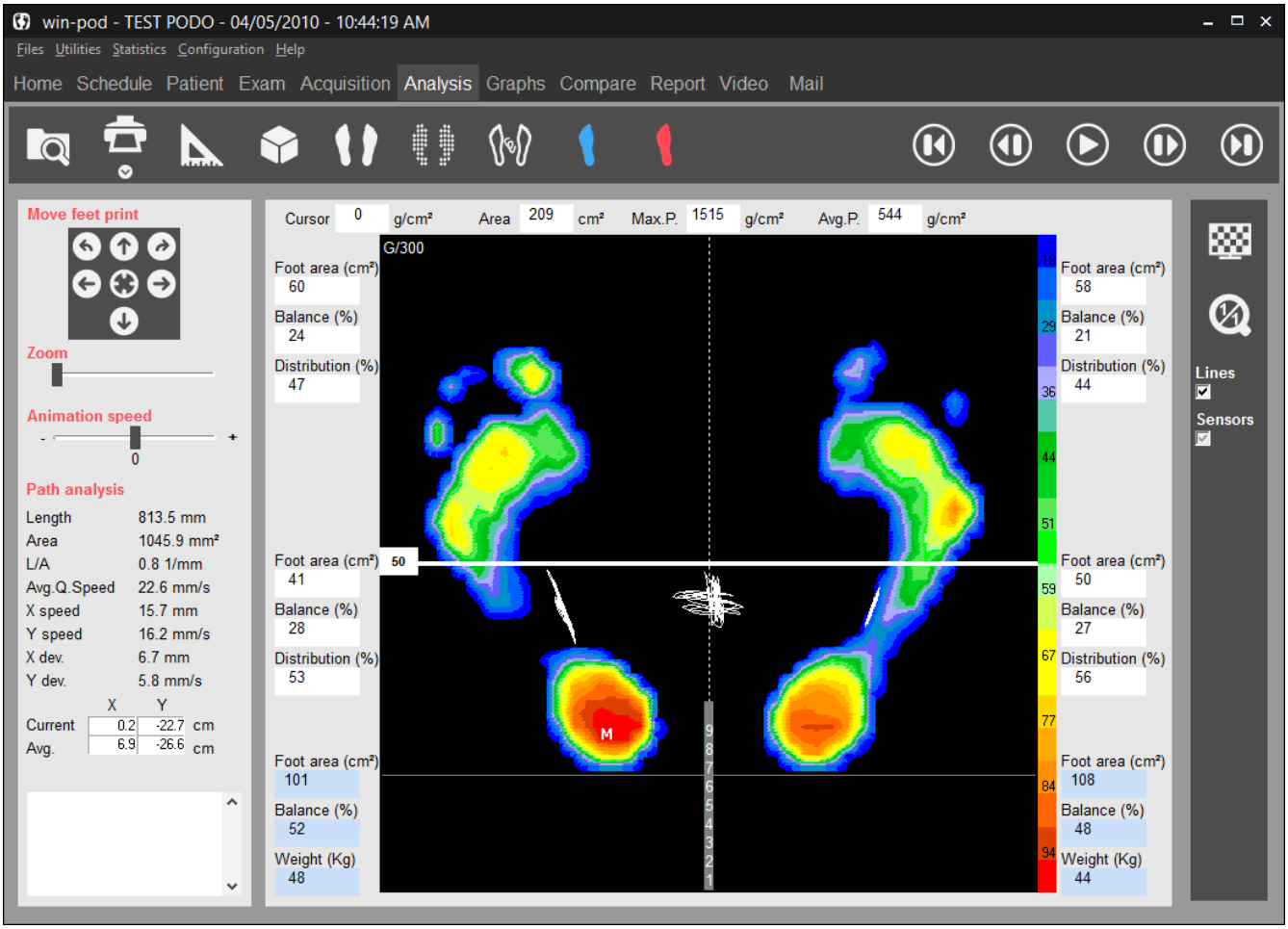
The foot is divided into 2 zones on both sides of the "**Gaitline**" (evolution curve for the center of pressure). The **Gray** Color (for the **Lateral**, external side of the foot) and **Orange color** (for the **Medial**, interior side) make it possible to display the zones used for calculations.

The graphs represent the evolution over time of the **difference between the forces on the lateral side and the forces on the medial side of the foot (FL - FM)**. If the lateral value is stronger than the medial value, the curve is positive, and indicates the prevalence of the lateral forces.
These curves are very useful to evaluate and quantify **the torsion of the foot** during the gait cycle as well as the phases of **Heel strike**, **stabilization** and **propulsion** which are difficult to evaluate clinically.
The studies of these functions have been of particular interest to orthopedic surgeons.

L/M index is located on the bottom right corner of each screen displaying the calculation of the relationship between the lateral and medial forces. When the index is equal to “1” it indicates that the medial and lateral forces are equal (which corresponds to a curve passing through the origin of the graph: FL - FM = 0).
By moving the mouse cursor on the curves, the particular foot print and L/M index will be displayed for that selected time of the gait cycle.

Note : If 2 dynamic measurements are loaded in "Comparaison", you can compare the medio-lateral analysis of these 2 measurements.

Detailed Postural Analysis



Detailed Postural Analysis

Tool Bar

Search : Access to database to load a measurement.

Print. The arrow gives access to "Scale 1 Printing" menu (see page 83) and "Attaching documents to an exam" (see page 27).

Performing Foot Print Measurements.

3D view.

Standard view.

Isopressure view.

Visualization of the foot print shape and Center of Pressure.

Contact duration.

Impulse view (Time x Pressure).

Return to normal scale 1 : 1.

Starts or stops the step progression.

and In « pause » mode, it permits visualizing one image after another (forward or backward).

Display the first image of the step.

Display the mean results image of all the images of the step process (global image).

Mosaic : display all the images of the step process.

Detailed Postural Analysis

Foot Print Analysis

Visualization tools

- ***Moving the foot print*** :

These keys are used for centering or rotating the foot print in case the patient was not properly positioned during the acquisition or to modify the forefoot/heel limit used for measurement by sectors.

Important Note : when you re-frame a foot print, the original recording in the database is automatically replaced by the re-framed data (if you then open this footprint, you will only see the re-framed version).

- ***Speed*** : The display speed of the acquired images can be modified by moving the cursor.

- ***Lines*** : Connect or not the thrust centers.

- ***Shape*** : in the "Center of Pressure" mode, display or do not display the feet shape.

Cartography

On the **cartography display**, the following information is available:

: Maximal pressure point (the absolute value is displayed in the *Max P* box.

: These three graphs (oscillograms) display the center of thrust under each foot and the global center of thrust primarily used in postural analysis.

: Time elapse since the beginning of the acquisition in milliseconds (ms).

Detailed Postural Analysis

Foot Print analysis

Calculation on both feet

- ***Cursor*** : In this box is displayed the foot pressure value on the point selected with the mouse (g/cm²).
- ***Area*** : Total surface area of both feet (cm²).
- ***Max. P.*** : Point M value : Maximal pressure on both feet (g/cm²).
- ***Avg P.*** : Average pressure on both feet.

Calculations per sectors

Several calculations are performed in each of the **4 sectors** (quadrants) of the podometer defined by a visible cross on the cartography.
The cross corresponds with the white arrow drawn on the platform surface.
The following parameters are:

For each sector (in white)

- ***Area*** : total foot print surface area in the sector (cm^2).
- ***Thrust*** : Percentage of thrust in the sector, proportionally to the **2 feet** total thrust.
- ***Distribution*** : Percentage of support in the anterior sector and the posterior sector for each foot.

For each foot (in blue)

- ***Area*** : foot print surface area (cm^2).
- ***Thrust*** total foot thrust.
- ***Weight*** distribution by foot.

Detailed Postural Analysis

Foot print analysis

Calculations related to the trace (curve between the feet)

- ***Length*** of the trajectory covered by the center of thrust (in all directions).

- ***Area*** of the closest ellipse to the stabilogram.

- The ***Length/surface*** ratio provides a “general value” of energy spent by the subject during the recording.

- The ***quadratic average speed*** parameter represents the vector sum of the antero-posterior and latero-lateral average speeds. This is not an algebraic sum but rather the square root of the sum of squares of the two previously mentioned speeds.

- The ***average speed*** (expressed in mm/sec) corresponds with the projection on the axis(Lat. in latero-lateral or frontal plan or Ant. in antero-posterior or sagittal plan) of the total displacements of the centre of thrust divided by the duration of the recording. Please note the displacements are measured in absolute value without addressing the direction of the patient’s movement. An elevated average speed of oscillations may indicate **postural instability**.

- The ***variance or standard deviation*** measures the scattering in relationship with the average position of the center of thrust. From a pure statistical point of view, 68% of the oscillations have amplitude between +1 and –1 standard deviation, 95% of the oscillations have amplitude between +2 and –2 standard deviations.

- **Cartesian Coordinates** of the global center of thrust averages : *Average* and on the displayed image : *Current*.

Detailed Postural Analysis

The different views

Standard View (See page 41).

Isopressure View (See page 42).

Center of Pressure View (See page 43).
In this view, you can perform one or several **zooms on the oscillograms**.

For zooming function:

- ✓ Click while pressing the key in the top left corner of the area to be zoomed.
- ✓ Move diagonally the mouse toward the bottom right area.
- ✓ Adjust the size of the area to frame the graph or the portion of the graph to be zoomed and then release the mouse key.

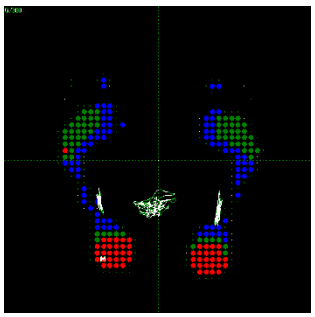
To return to the initial view, click on .

Contact duration (See page 53).

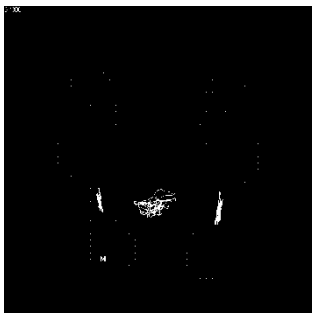
Impulse View (Time x Pressure) (See page 53).

3D View (See page 43).

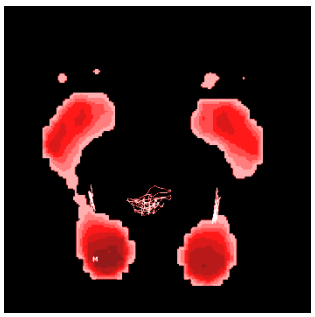
Measurements Option (See page 44).



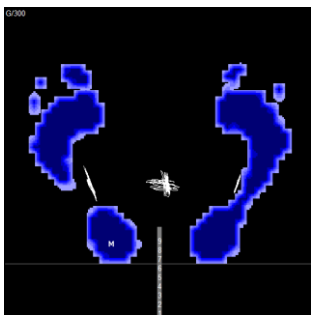
Isopressure



Center of Pressure



Impulse

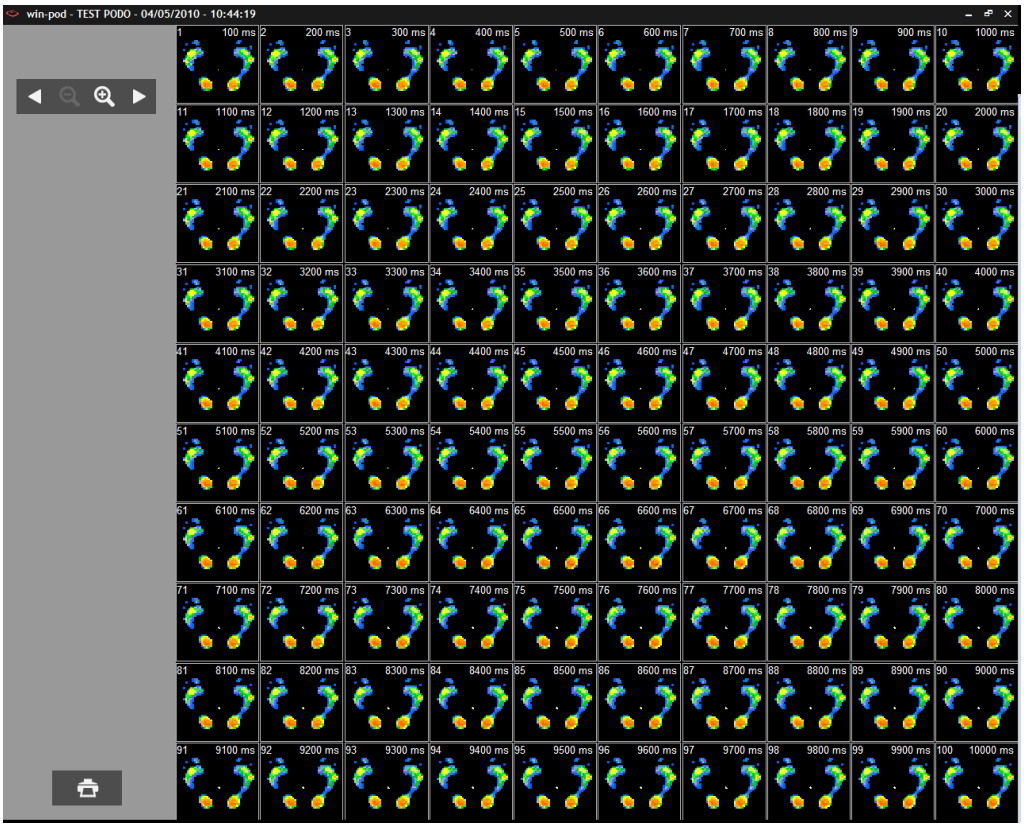


Contact duration

Detailed Postural Analysis

"Mosaic" view

This mode is used for the analysis of major movements or high instability. It allows viewing all the acquisition images simultaneously and looking for the movement phases.



Front Zoom.

Back Zoom.

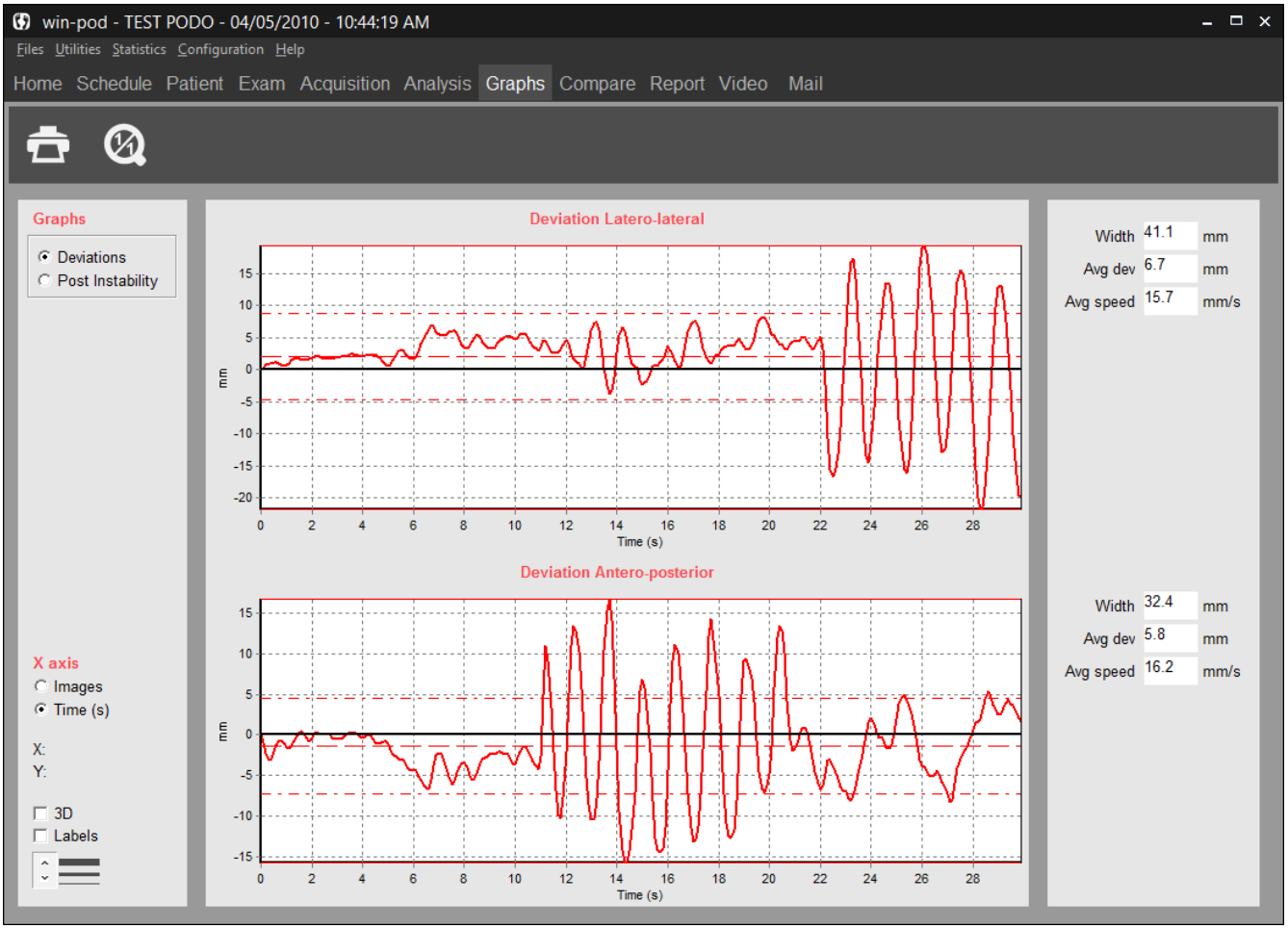
and Forward or Backward display.

Print.

Note : When you double-click on one image in the mosaic view, you directly access the detailed analysis of that image.

Graphs - Postural Analysis

Stabilometry analysis is performed through the study of 3 graphs associated with calculations of several physical parameters.



Graph Selection

Click on the graph you want to select:

- ***Deviations*** *:* These graphs display the progression of the center of thrust in the antero-posterior and latero-lateral axes during the recording. The vertical values cover a range between 10mm to 50mm in the base of the polygon and along to the antero-posterior axis. The **positive values** on the graph **display the anterior or right side**, the **negative values** display represents **posterior or left side.**

- ***Postural instability*** : This postural instability displays the evolution of the speed of the body's center of thrust movement during the exam.

Graphs - Postural Analysis

Graphs display options

- ***X axis*** : For each dynamic analysis graph, you can select to display "Images" or "Temps" (en ms) on the abscissa axis.
- ***3D*** : 3D Visualization of the graphs.
- ***Labels*** : Displays the values of each image (to be used in conjunction with the zoom function to facilitate reading the values).
- : Selecting the thickness of the graph lines.
- ***X, Y*** : Cartesian coordinates for each point you select on the graph.

Parameters

The numerical parameters are displayed on the right side of the graphs :

- ***The Range*** of the oscillations evaluates the distance in millimeters between the most anterior point (the farthest on the right) through which the center of thrust ran through and the most posterior point (the farthest on the left).
  The range of the oscillations is independent from the positioning of the patient on the platform since the software searches for the extreme points reached by the center of thrust and then calculates the distance between these points along the antero-posterior axis (or latero-lateral).
- ***The Standard Deviation*** measures the scattering in relationship with the average position of the center of thrust. From a pure statistical point of view, 68% of the oscillations have amplitude between +1 and –1 standard deviation, 95% of the oscillations have amplitude between +2 and –2 standard deviations.
- ***The average speed*** (expressed in mm/sec) along the antero-posterior axis is equivalent to the projection of the entire displacements of the center of thrust on that axis divided by the duration of the recording. Please note the displacements are expressed in absolute value without consideration of the patient direction of movement. A high average speed of oscillations in the sagittal plan may indicate a significant postural instability in the antero-posterior direction.

The global parameters of instability related to patient's balance as described in the foot print analysis (see page 68) are displayed along with the postural instability graph.

Measurements comparison and Romberg quotient

Romberg Quotient is calculated based on the length and surface parameters of 2 specific postural recordings : the first measurement is based on a recording with **eyes open** and the second with the **eyes closed**.

Acquisition

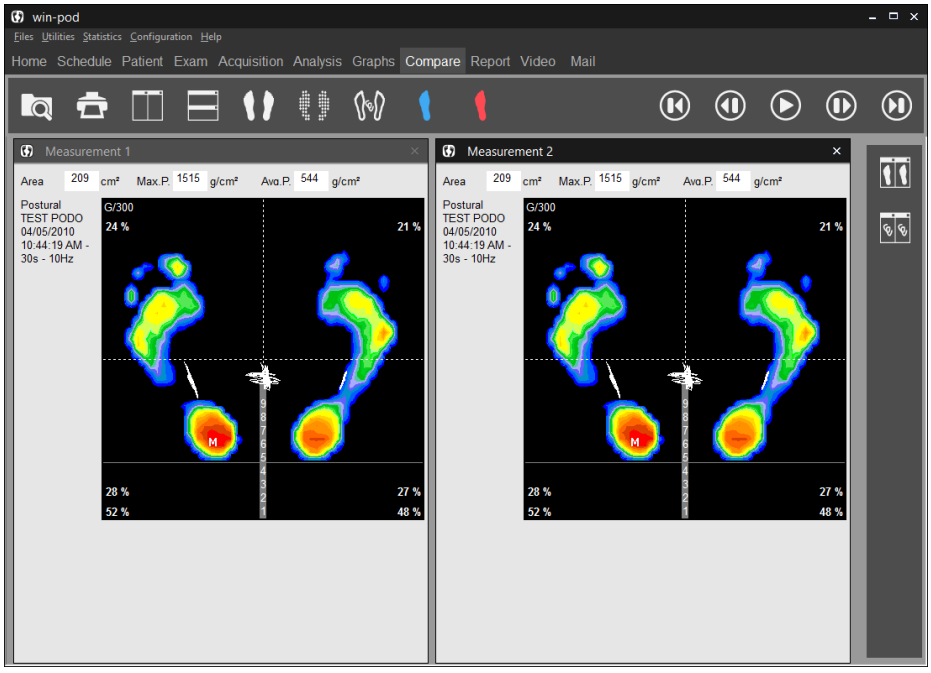
The recording procedure is described in the « postural acquisition » paragraph. If you want to perform the test of Romberg, you need to record 2 different postural measurements (in the same exam file).

- ✓ Open the patient's database.
- ✓ Create a new exam.
- ✓ Perform the first recording (eyes open).
- ✓ Perform a second recording (eyes closed).

Analysis

For calculating Romberg's quotient, you need to :

- ✓ Click on the "**Comparison**" tab in the software.
- ✓ Load the "**eyes open**" and "**eyes closed**" recordings.
- ✓ Visualize the quotients "Area" and "Length" by clicking on (you can also compare postural measurements).



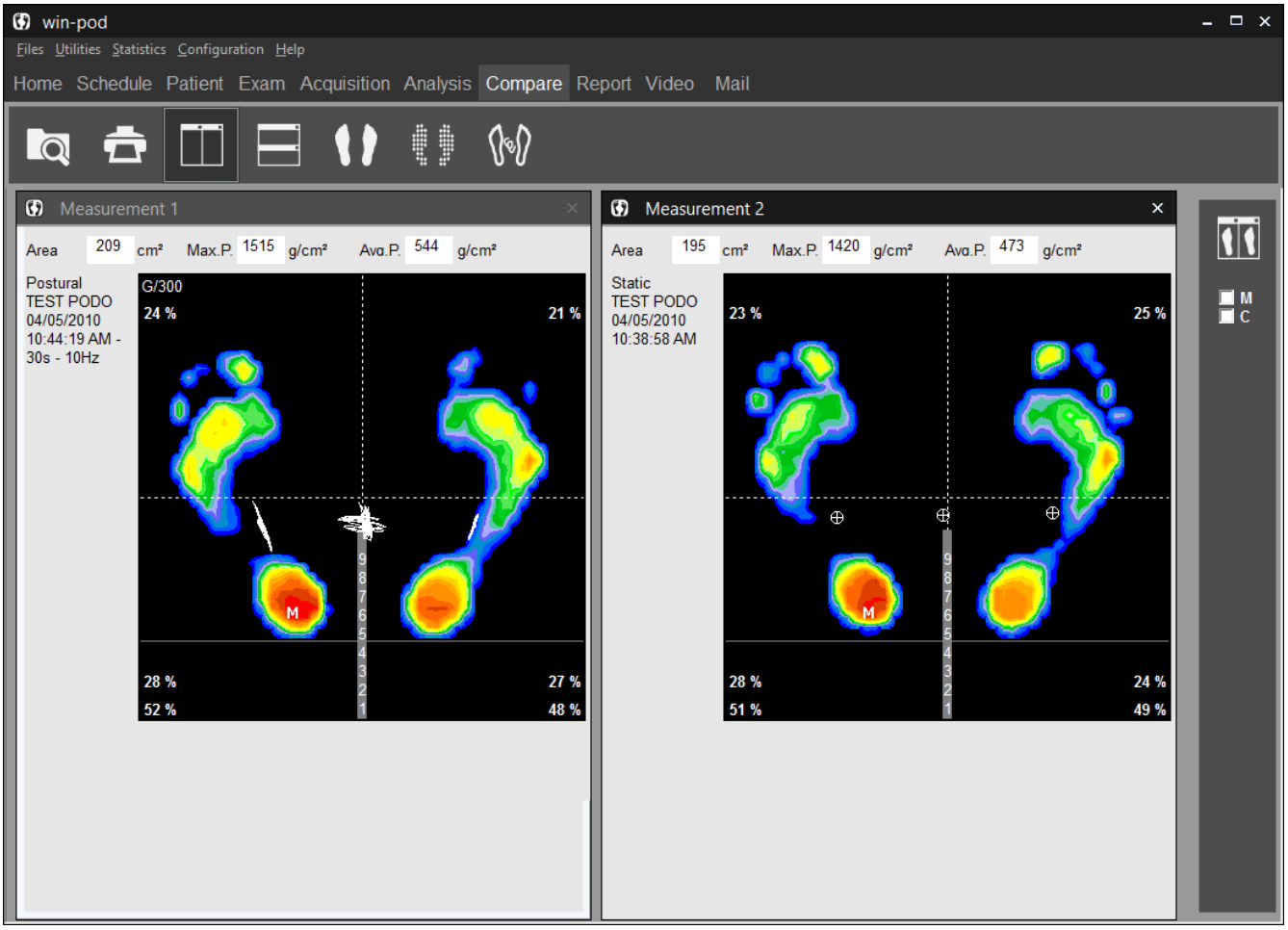
"Comparison" Tab

General information

It allows viewing up to 4 measurements simultaneously on the same screen.

This viewing mode provides the following options :

- ***Patient follow up*** : viewing measurements on different dates.
- ***Comparative study*** (Test / Re-Test) : for example, viewing a static measurements without corrective procedure and with correction.
- ***Comparison and correlation*** of different types of measurements (viewing simultaneously a static, dynamic and postural measurement on the same patient).
- ***Comparison between patients***.
- View a measurement in ***different modes*** of visualization (for example in Standard mode and Isopressure mode).



"Comparison" Tab

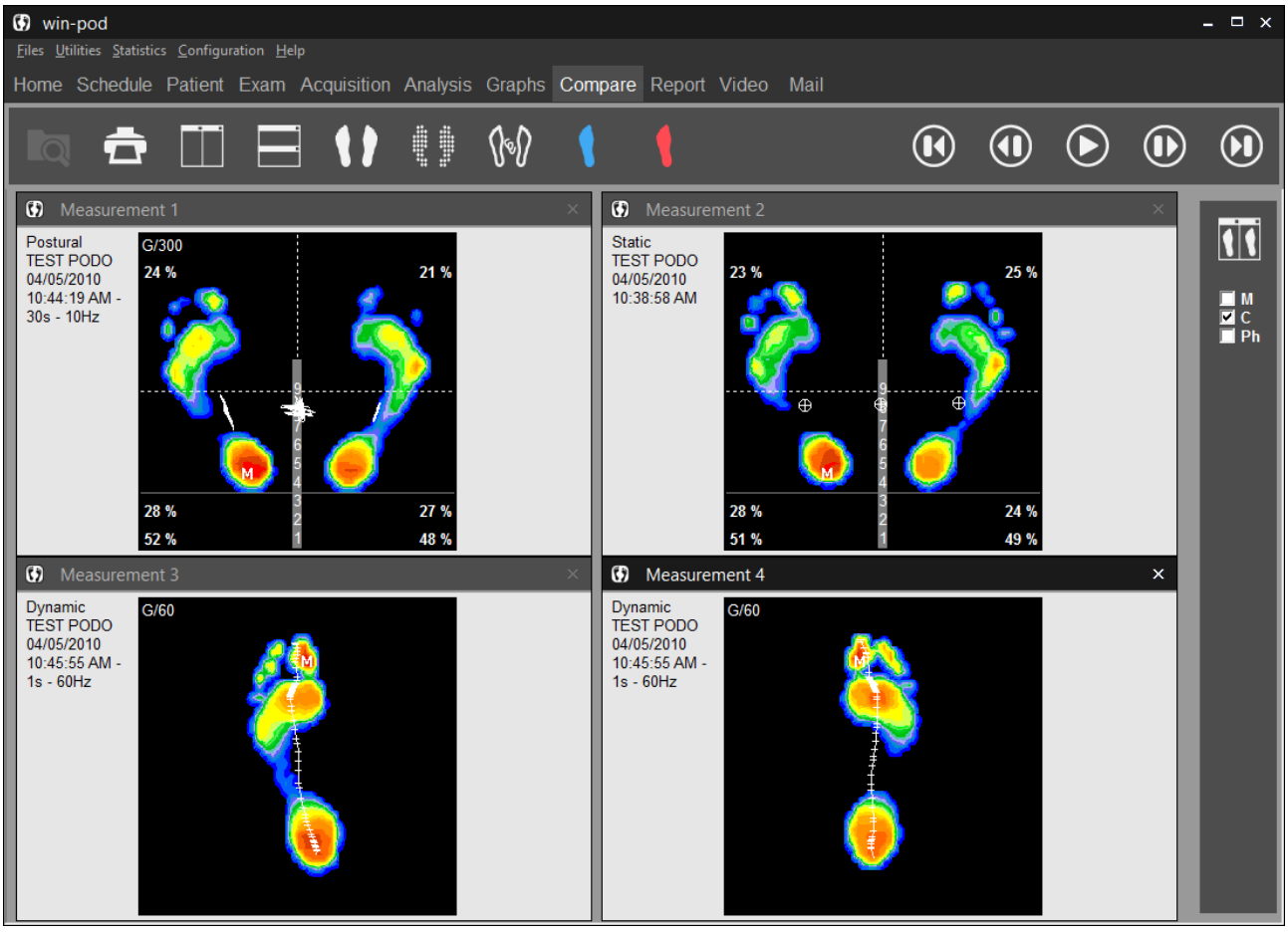
Up to 4 measurements comparison

- ✓ Load the measurement to compare by clicking on . Select the measurement in your patient database.
- ✓ Repeat the same procedure for all the measurement to compare (4 max). and allows viewing respectively vertical and horizontal mosaic.
- ✓ To unload one measurement, click on located in the upper right corner of the screen.

Note 1 : the screen not boxed in gray relates to the measurements visualized in the « Detailed analysis » tab".

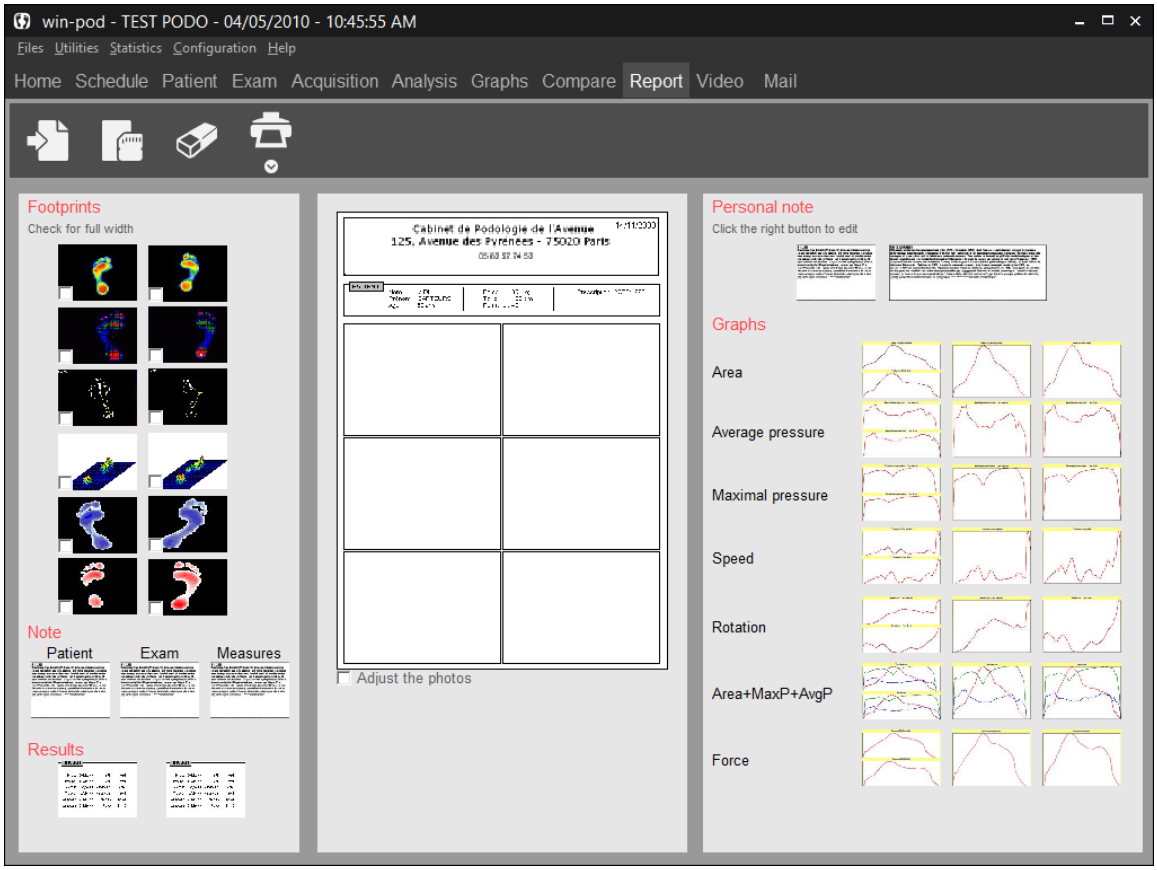
Note 2 : If you load dynamic measurements, 2 screens are required. So you can visualize only 2 dynamic measurements.

Note 3 : You can also compare podometric measurements by clicking on .



"Report" Tab

A.K.A. "Pizza" report, this report printing option provides a practical way to create "**personalized**" **reports** from different screens available in the program.



All the available information which can be printed (cartography, graphs, notes, etc.) are located on each side of the central blank page (divided in 6 areas or 3 areas if you select "Full width").

Create your report by moving the information screens you selected from the sides to the central page areas. When your report is created, you can print it directly or save it as a model to use later with another recording.

Tool bar

Print a report. The arrow gives access to "Attaching documents to an exam" (see page 27).

Save a model report.

Load an existing report model.

Erase the central page to make it blank.

"Report" Tab

Tool bar

If **all the loaded measurements are of the same type** (Static, Dynamic or Postural) 2 printing modes are available :

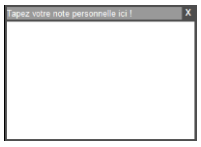
Printing of an active measurement.

Printing of all measurements **without preview**.

Select the printing mode by clicking on to start printing.

Creating a personal note

- ✓ Move/drop the **textbox "Personal Note"** in the location you selected.
- ✓ Right click on the textbox "Personal Note" and select "Edit a personal note".

  The following textbox appears : 

- ✓ Type your text and click on when finished.

Inserting an image

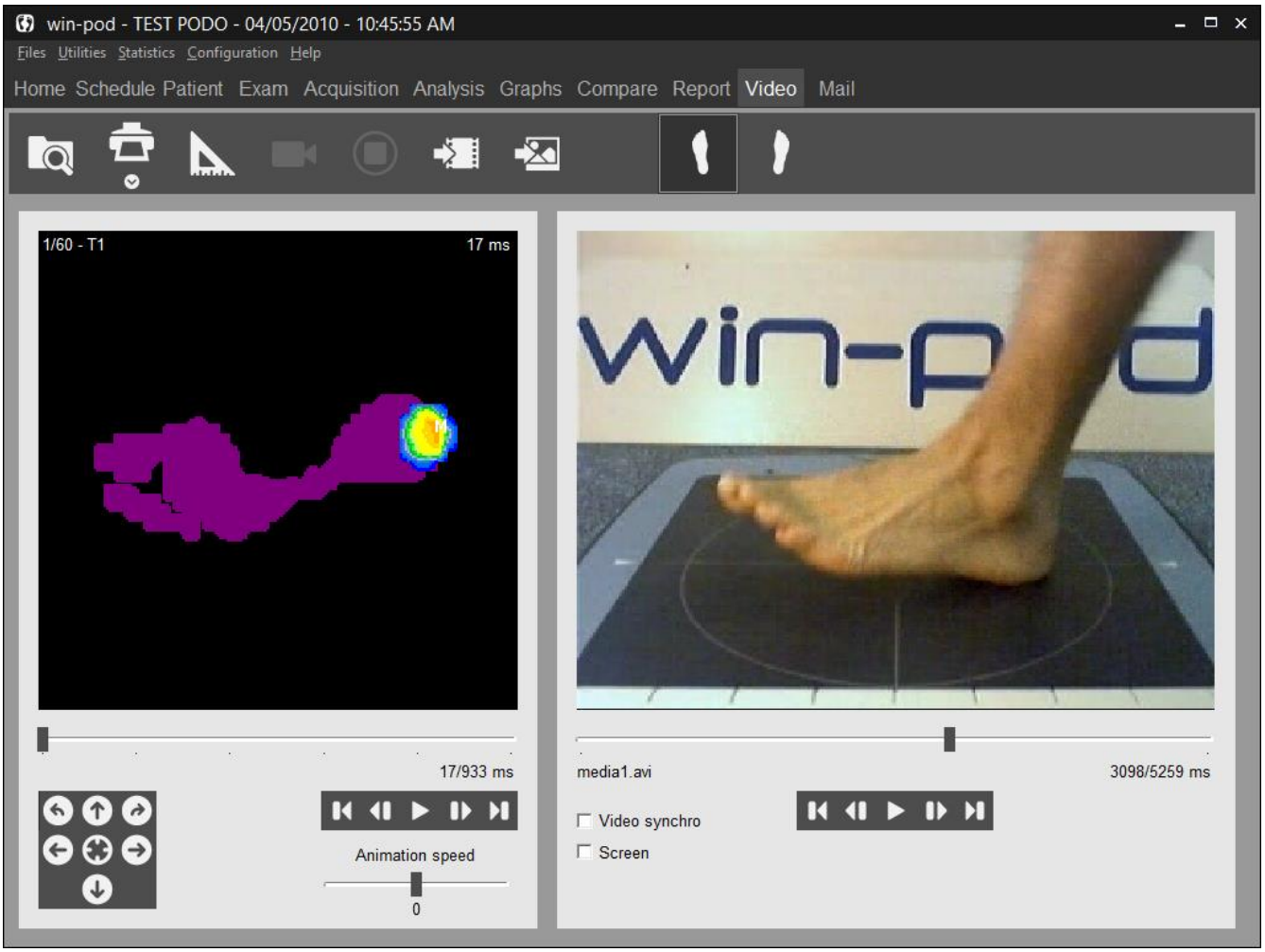
To insert an image in the report :

- ✓ Right click on an empty box in the report and select "Load image".
- ✓ Search for the image on your computer using the explorer and click on "Open".

It is not possible to mix static, dynamic or postural images on the « pizza » report.

To visualize measurement of different types (for example to compare a static and a dynamic foot print on a patient), select the "Comparison" tab.

"Video" Tab



Tool bar

Print the podometry image and the video image associated. The arrow gives access to "Attaching documents to an exam" (see page 27).

Link an existing video to live exam recording.
This key allows exploring the hard drive to load a video in **asf**, **avi** or **wmv** format.

Link an existing image to live exam recording.
This key allows exploring the hard drive to load an image in **jpg**, **jpeg** or **bmp** format.

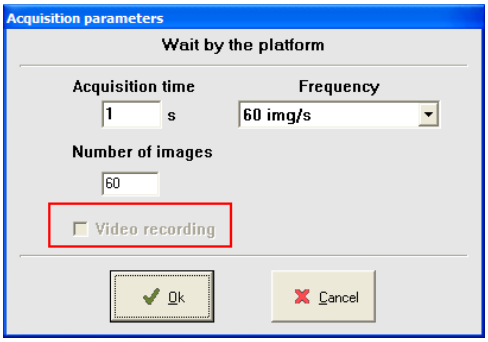
Allow recording video at a different time than the podometry acquisition.

"Video" Tab

Simultaneous recording Video / Podometry

Only available with a Basic Dynamic (see page 33) and Postural (see page 37) acquisition.

- ✓ In the "Acquisition" tab, select "Dynamic" or ‘Postural”.



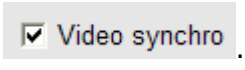
- ✓ Check mark "Video Recording" (not available in "Multiple dynamic" acquisition).

Note : When the "Video Recording" message has a gray background, the computer did not detect the video acquisition system. Verify that the webcam is properly connected and device properly installed.

- ✓ Perform a normal measurement. The software will launch the video acquisition automatically.

Post-synchronization of the video with the dynamic foot print

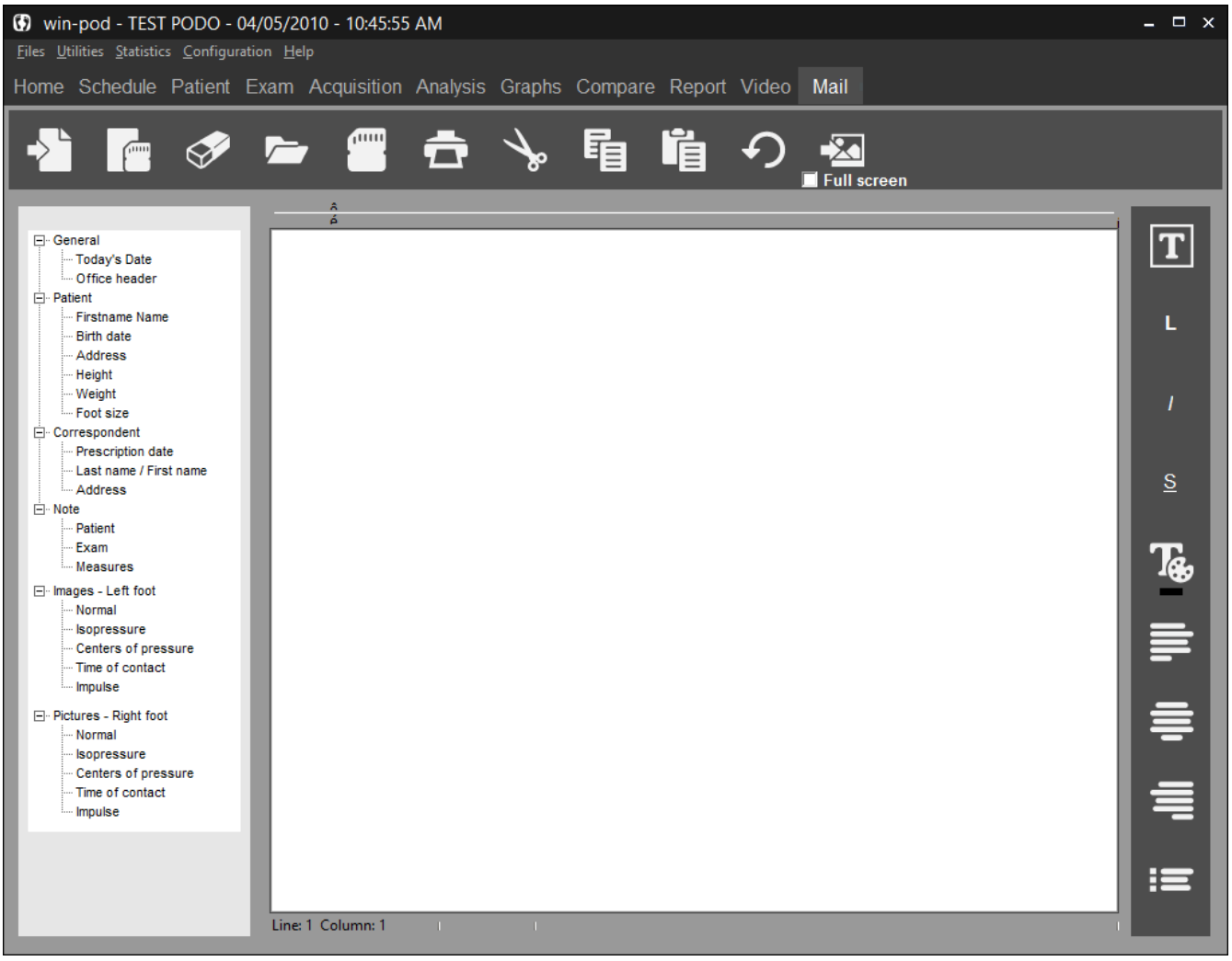
- ✓ After the video is recorded, it is automatically synchronized with the podometry acquisition. In the “Video” tab, the buttons and under the video allow to perfect this synchronization. You must go to the first podometry image to access them and so fix the first video image.

- ✓ If you recorded the video with an other software, you can also synchronize it in the “Video” tab by clicking on right menu . When the two screens are « locked in position », click on  .

- ✓ The left menu then becomes the unique control bar for the 2 animations.

"Mailing" Tab

Allow to generate model letters to attach with your reports.



On the left side of the screen, you have access to the information categories from the patient file, exam and feet images.

To compose your letter, type your text and then double click on the line or image you wish to include in the letter.

You can also save a model letter by clicking on . Then you will only have to reload it by clicking on and complete it with the specific patient informations.

"Mailing" Tab

Tool bar

Search for an existing model letter.

Save model letter.

Erase the page.

Open an old patient letter.

Save the letter in txt format (to export in Word).

Print letter.

To format the letter, you have the following functions :

Cut the selected text.

Copy the selected text.

Paste the selected text.

Undo the last modification.

Change the font.

Put respectively in bold, italic or underlined the selected text.

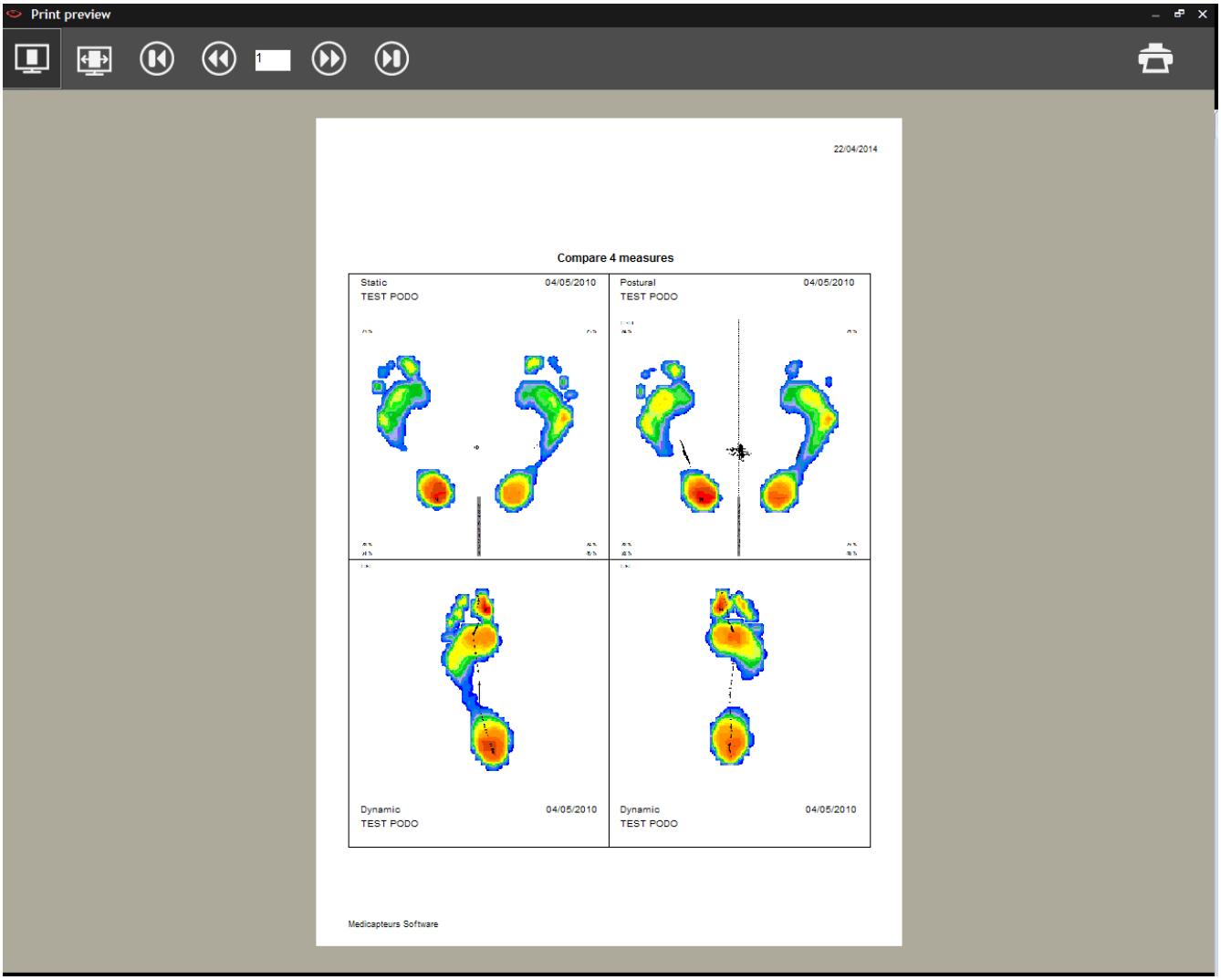
Change the selected text color.

Justify the selected text respectively on left, center or right side.

Add chips.

Insert an image. By clicking on “Full screen”, the image will occupy the width of the page.

Printing



Tool bar

Click on this key to access print menu.

Full page print preview.

View full screen preview.

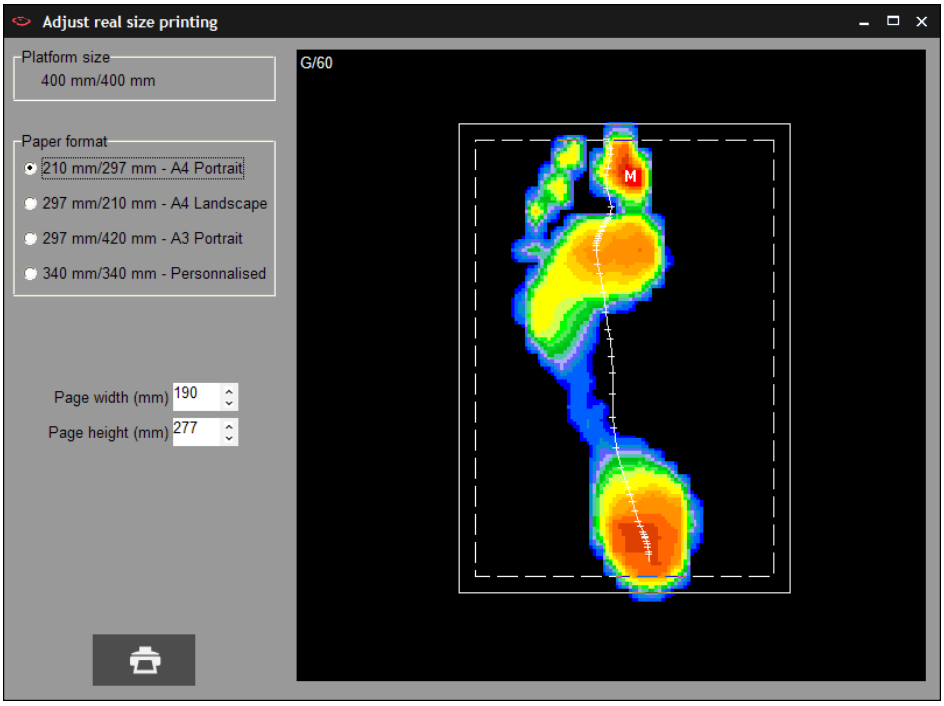
Print.

You can remove the print preview and printing will be launched when you click on in one of the tabs in the software. Go to *Configuration/Parameters/General* (see page 16).

Note : You can download and install pdf Creator or FOXIT, free softwares which appear as a printer and allow to create PDF format files.

Scale 1 Printing

In the "**Detailed Analysis**" section, you can print the foot pressure mapping in **real size** (within one captor resolution level).



Click on the arrow and select the menu "Print real size".

The "Centering of the real size footprint" appears :

This particular screen allows **defining the area to print**. In fact the regular paper size is smaller than the active surface of the podometer; therefore it is necessary to select the portion of the cartography you want to print.

Usually, you print one foot after the other.

The "**Format Paper**" window allows selecting a box which is superposed to the cartography. This box coincides with the printable area which is properly displayed according to your paper size.

To position the box on the area to be printed, position the mouse inside the box. Left click and press on the mouse and move the box to the selected area.

Note 1 : You can reduce the pre selected "width" and "height" by clicking on the arrows .

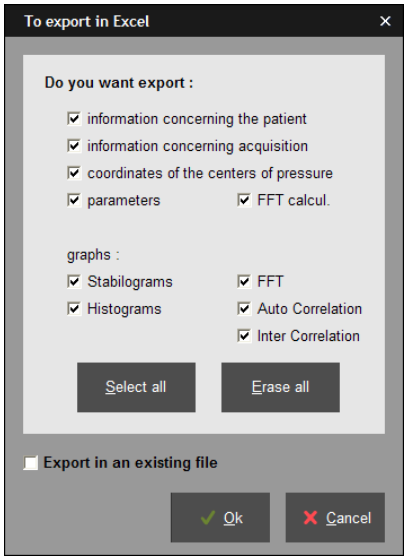
Note 2 : If you have a printer with A3 paper, you can print the 2 feet at the same time.

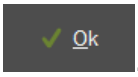
When the box is properly positioned on the footprint, click on to access to the printing menu (see previous page).

Exporting Data

By right clicking with the mouse on the “detailed analysis” tab or on a graph in the “graphs” tab, you can :

- ***Copy in the clipboard*** the selected image.
- ***Save on a database*** the selected image in Bitmap format. A window appears to target the file name and the folder.
- ***Export a video*** allow to create an AVI video of a dynamic or postural acquisition. A window appears to specify the name and the folder of the created video.
- ***Exporting series of recordings to Excel***. The window appears :



  - ✓ Select the information to be exported.
  - ✓ If you have to export in an existing file, click on the corresponding check box.
  - ✓ Click on 

. An excel file is open including multiple pages where each type of available information is presented.
  - ✓ Record the excel file on the hard drive.

- ***Exporting matrix*** (in the “detailed analysis” tab"). It allows creating a text file which contains all the captors’ numeric values. A window appears to specify the name and location of the file that is getting created.
- ***Full page***, ***other graph*** or ***2 graphs*** (in the "Graphs" tab) allow to display graphs on a full page or to return to 2 graphs visualization.

Patient database back up

WARNING!

It is necessary to frequently backup the "WIN-POD Software" patient database which includes all patients. In fact, a technical computer dysfunction may damage, even destroy all your data which then cannot be retrieved.

One back up per week is recommended.

Patient database back up

Copy the folders **Data**, **Documents** and **Movies** located in **C:\win-pod** to a back up unit, such as :

- CD or DVD writer
- ZIP Drive
- Another Hard drive
- USB Key

Reloading a backed up patient database

If you are not certain of the procedure, please contact us.

Procedure to follow when installing the back up database on a new computer configuration :

- ✓ Install "WIN-POD Software" following the instruction manual.
- ✓ Launch the DBManager utility function which can be accessed through **Start/All programs/ Medicapteurs**.
- ✓ In the DBManager section :
  - ➢ Click on the command "**Import a database**".
  - ➢ The following window opens "Assistant for importing a database".
  - ➢ Select your back up unit.
  - ➢ Double-click on your back up DATA folder.
  - ➢ Then click on "**Next**" and then on "**Start**".
- ✓ When the import is completed all the patients are directly integrated in the patient database of the "WIN-POD Software". You can verify that importation was successfully completed by opening the "WIN-POD Software" and then by clicking on “search” in the "Patient" tab.
  Verify then the displayed list and that the associated measurements are present.

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